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HYGEIA

The Health Magazine

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

Skiing

Watch Your Diet

Diabetes, Doctors and Dogs

War Against Dental Decay

You Call Them Deaf—

Appendicitis

JANUARY 1937

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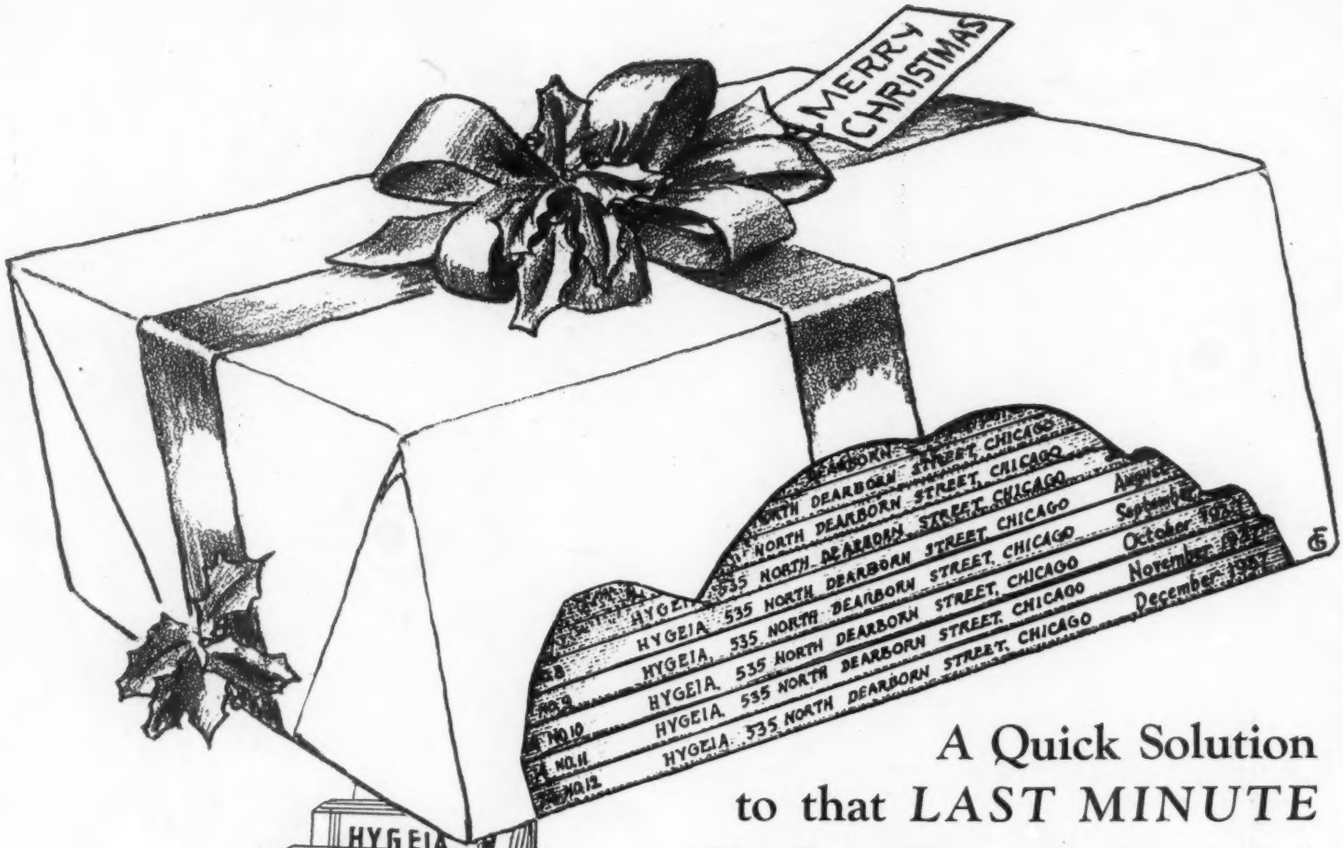

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HYGEIA•

JANUARY 1937

THE HEALTH MAGAZINE

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Volume 15
Number 1

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First you said "peach pie" now "peach shortcake"

Well I like peaches *every way, mother*

TRY THESE

They're easy to make . . . and the family will shout for more

PEACH PIE Prepare ordinary pie dough. Roll out a lower crust and dot with butter. Drain canned peach halves or slices and fill the crust. Dust with flour and dot with butter. Pour in a little of the juice. Lattice with strips of pie dough. Bake in a slow oven 25 to 30 minutes. Serve plain, or with whipped cream or with vanilla ice cream.

PEACH SHORTCAKE Use either hot biscuit dough or sponge cake recipe. Cover bottom layer with whipped cream, then canned sliced peaches. Place over this a second layer of cake; and cover with thick whipped cream, onto which place another layer of the sliced peaches.

Any way you serve them, Canned Peaches are good . . . *and good for you*

Did you know, for instance, that besides being so delicious canned peaches are a source of essential vitamins A, B and C? Peaches at their peak of flavor, full of nature's luscious goodness, are peeled, washed and rushed into cans with incredible speed—then *seal-cooked*. This *seal-cooking*, as done at the modern cannery, conserves in high degree vitamins subject to usual destruction by air (oxygen). Keep canned peaches on hand, both "halves" and "slices"... serve them often, in a variety of ways. You'll win compliments.

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Council on Foods of the American Medical Association.

Home Economics Department

AMERICAN CAN COMPANY

230 Park Avenue CANCO *New York City*

GENTLE AIDS
To Regular Elimination

PROPER FOODS

ROUGH foods, tough foods, cloying sweets, biting acids, fatty foods, lean foods—what a motley assortment of edibles the human digestive tract is called upon to handle! And strange to say, for most of us it does the job very well.

The fact is that man, unlike the strictly carniverous lion, the herbivorous elephant or the nectar-loving bee, is so created as to be able to utilize and enjoy an almost unlimited range of food substances—meat, vegetable, fruit, cereal, beverage—in many and varied forms.

But, versatile as is the digestive tract, it is a sensitive organ. It reacts differently to different kinds of foods. Some foods may be over-irritating. Others may be so highly concentrated as to lack the bulk necessary for healthy intestinal functioning. There may be too much or too little liquid in the diet. Fruits or vegetables may be lacking—the diet may easily become lopsided.

HENCE, whether there is a continued bowel irregularity it is the part of wisdom to look to the diet. Selecting and eating those foods which permit normal functioning, and avoiding those which are disturbing, is far more conducive to health than falling into the habit of using harsh and disturbing laxatives. It is the gentle way to treat the intestinal tract—as sensible as giving support to a broken bone or removing a cinder from an irritated eye. But the selection of a diet to aid in bowel regularity is a job for the physician. He knows the physiology of digestion. He is acquainted with the properties of foods. He is sure to steer away from diets which often do more harm than good. He will prescribe a "gentle aid" wherever possible.

THIS is the first of a series of educational advertisements on "Gentle Aids to Regular Elimination" by the makers of Petrolagar (an emulsion of pure mineral oil—65%—with agar-agar). Petrolagar, because it performs only a lubricating and softening function, is also a "gentle aid" to regular elimination. However, like diet or any other measure, Petrolagar should not be self prescribed. It is harmless, but certainly not a "cure-all." Best results in dealing with difficulties of the intestinal tract will invariably be obtained when a physician is given the opportunity to make a careful diagnosis and prescribe whatever measures fit the individual case. Another advertisement in this series will appear next month.

PETROLAGAR LABORATORIES, INC. ❖ 8134 McCORMICK BOULEVARD ❖ CHICAGO

JANUARY 1937

Heredity and Disease

SINCE the famous monk Gregor Johann Mendel first studied the laws of inheritance in 1865, we have learned much about what is inherited and what is not. Members of the Austrian royal family inherit the Hapsburg lip. Children of the Spanish and Russian royal families seem to inherit the type of bleeding called hemophilia. Scotchmen incline to be thin and Germans and Greeks to be fat. Our knowledge of heredity is recent and slight.

Already it is clear that human beings inherit not the disease but occasionally the type of body structure which may predispose to certain diseases. Tuberculosis, pneumonia, nervousness and melancholia are likely to be associated with thinness. Diabetes, kidney diseases, hardening of the arteries and disturbances of the stomach and intestines are more likely to happen in fleshy people. But there are many exceptions to these associations.

THE nature of all of us is determined largely by the nature of our parents. The cells from which the body grows are marked by the parents who contribute them to the child. In these cells are constituents called chromosomes in which are carried mechanisms for hereditary characteristics. Every cell in the body gets some portion of this initial force. One set of chromosomes comes from the father and one set from the mother. This is fortunate because if some particular gene or formative substance from one parent is defective, it is likely to be offset by a normal gene from the other parent.

ONCE we thought that leprosy, syphilis and tuberculosis were hereditary. Now we know that they are not. Unless the germ is passed along, the disease will not occur in the children.

The color of the eyes, the nature of the hair and the shape of the body may be determined by the structure of the parents but not by what happens to be in the parents' minds. There is no reason to believe that a woman who sits for hours before the statue of Adonis in the Art Institute will have a child who resembles Frederic March or Robert Taylor. There is no reason to believe that a woman who practices for hours on a musical instrument or listens for hours to the symphony orchestra will give birth to a Beethoven or a Brahms. Yet there is evidence

EDITORIAL

that special capacity in music is inborn. Bach composed music before he was 15 years old, Beethoven at 10, Brahms and Handel at 10, Chopin at 8 and Haydn at 6. If the ancestors of a child were not musical, there is no reason to believe that multiplying of lessons or the hours of practice will make him a genius.

There are some diseases that occur more frequently in the children of those who have these diseases than in other persons. The various sensitivities, like hay fever and asthma, are diseases of this type. There are some forms of blindness and hardness of hearing which occur more often in some families than in others.

THE old-time novelists used to create absorbing plots by presupposing that every family which shamefacedly admitted that it included a drunkard carried with it a hereditary strain of drunkenness. Modern scientific students of heredity have come to a different conclusion. It has been said that fat parents have fat children sometimes because the parents eat too much and the children imitate them. Perhaps the bad example of a drunken parent is responsible for the child's drunkenness rather than any predetermined inheritance from the germ cell. So after all we need not worry too much about inherited disease.

We may concern ourselves with inherited appearances. People who get gray early and those who become bald early are likely to transmit these characteristics to their children. Thick eyebrows and eyelashes are also likely to be inherited. To some extent the tendency for freckles occurs in families. In a few cases when human beings have been born with tails it has been found that other members of the family had a similar appendage.

There are some forms of mental defect or insanity which run in families. But there is no reason to believe because these things occur that fully normal first cousins or persons of fairly close relationship should not marry. Remember that the good qualities as well as the bad may be intensified by such marriages.

There is so much that is not known and so little that we really understand about inheritance that it is always best to consult the exact knowledge of the family doctor before worrying unduly about hereditary diseases.

You Call Them Deaf—

By WALTER A. WELLS

Time: May 7, 1824.

Place: The Court Theater in Vienna.

Occasion: A concert by Herr Ludwig van Beethoven.

AFTER much acrimonious discussion and many cancelations this date and place and the program were finally agreed on. Prince Galitzine, who volunteered to sponsor the event, had to be extremely tactful and patient, for the temperamental composer had been more than usually obstreperous and difficult to handle of late.

All the music loving and fashionable world of Vienna was on hand, keyed up to hear his latest creation, the Eighth Symphony. The house was completely sold out, for Beethoven was now at the height of his fame. He had at last overcome the pedagogic criticism of his startling and strange music and he was acclaimed the world over as the greatest musical genius of the age if not of all time.

He was the adored of the Viennese. He had supplanted even Mozart and Haydn in their admiration and affection. They laughed tolerantly at his odd pranks and eccentricities; they were moved to sincere sympathy by the knowledge of his increasing deafness.

It was an attentive earnest audience that had come to hear him, and they sat spellbound as the fervent soul stirring strains met their willing ears. And then as the last notes died away they awoke as from a beautiful dream, and with one accord the whole house burst into a wild enthusiastic acclaim.

But the object of their applause was unconscious of it all, for at the moment his back was to the audience, and not a sound penetrated to his dull ears. One of the leading singers stepped quickly to his side and turned him to face the audience. Then as the ovation doubled in force and became a veritable storm he saw what he could not hear. Overcome with emotion, tears came into his eyes, and he fled from the stage.

Poor Beethoven! If he could have postponed his advent on earth for some hundred years, he would not have died a bitter, crestfallen, miserable man.

To be without the sense of hearing is in any circumstance a sad deprivation. For a musician especially it is an inexpressible calamity. It is certainly the irony of fate that one who gave such delights to the ears of his fellow man should be himself denied the common privilege of hearing.

To be able no longer to hear the pleasing sounds of nature is no less a loss than to miss the rhythmic cadence of man-made music. The world of nature is everywhere replete with sounds, and they make up a greater part than is generally realized of the pleasurable reactions of outdoor life.

The deaf man no doubt derives a certain satisfaction from the mere visual contemplation of a beautiful woodland scene; but how much greater his enjoyment would be if he were able at the same time to hear the rustle of the leaves or the soft murmur of the rippling stream.

> The song of bird and bee
> The chorus of the breezes, streams and groves,
> All the grand music to which nature moves
> Are wasted melody
> To him: the world of sound a tuneless void,
> While even silence hath its charm destroyed.

However, if hearing had no other than a mere poetic or esthetic interest, there are many people who would not be so greatly disturbed over its loss. But as a matter of fact its loss or even its impairment is one of the most serious handicaps one can suffer in the practical affairs of life.

WRITING may well be used for the slow conveyance of deliberate speech, but for the rough and ready interchange of ideas there is no substitute for the spoken word, for the understanding of which good hearing is indispensable. Furthermore, the importance of hearing has of late been immeasurably increased by the introduction of the radio and the talking screen; for these popular inventions are now in universal use not only for entertainment but for instruction purposes.

The deaf man has other crosses to bear in addition to his deafness.

It is well known to the medical profession that certain physical ailments are accompanied by characteristic mental and emotional disturbances. This is particularly true of defective hearing. The explanation is to be found in the difficulty that the hard of hearing have with their social environment.

On the one hand there is the constant strain of trying to hear and on the other hand the frequent failure to hear correctly. Straining to catch conversation keeps the person with defective hearing in a constant state of tension, which in many cases gives origin to nervous exhaustion and irritability. Inability to hear affects the individual by reflex from his environment. When people find that they must constantly shout and often repeat to make themselves

AS ONE OF THE LEADING SINGERS STEPPED TO HIS SIDE AND TURNED HIM TO FACE THE AUDIENCE, BEETHOVEN SAW WHAT HE COULD NOT HEAR.

understood, they become impatient and eventually may altogether avoid their deafened friend or neighbor. The effect is to cause the latter to shun society, to become timid, morose, pessimistic and in some cases cynical, misanthropic and unnaturally suspicious.

BEETHOVEN'S temperamental peculiarities are well known. In his case his isolation from his fellow man because of his deafness was probably emphasized by his habits of extreme mental abstraction. It was said for instance, that he had been known to receive friends in the morning with only one side of his face shaved, the other covered with lather which he had forgotten to remove. Once he sat for hours in a restaurant, forgetting to eat and not knowing he had not done so until he rose to pay his check and leave. He was in a high degree irascible, quarrelsome and suspicious.

How his increasing deafness was preying on his mind is revealed by a confidential letter he wrote in 1800 to his friend Karl Amende: "Your Beethoven is most unhappy and at strife with nature and Creator. The Latter I have often cursed for exposing His creatures to the smallest chance, so that frequently the richest buds are thereby crushed and destroyed. . . . Only think that the noblest part of me, my sense of hearing has become very weak. Already when you were with me I noted traces of it and I said nothing. . . . Please keep as a great secret what I have told you about my hearing; trust no one whoever it may be, with it."

Here Beethoven exhibits a psychologic characteristic peculiar to all who suffer this defect; namely, a mortification on account of its existence.

In the same year he wrote to another friend, Dr. Wegler: "I may truly say that I pass my life miserably. For two years I have shunned society, for I cannot go about saying to everybody 'I am deaf.' Had I followed any other art, it might have done, but in mine it is an intolerable infliction. And then my enemies, who are not few, what would they say if they knew it! . . . I am surprised that people have not yet perceived my infirmity; but apparently everything is set down to my absence of mind. When a person speaks softly I can scarcely hear him; I hear the sounds but not the words, and if anyone speaks loud I feel it insupportably. I am often tempted to curse my own existence. I pray you speak of this to nobody."

Beethoven wrote his will in 1802 while living at Heilingstadt, a small village on the outskirts of Vienna.

He felt impelled to justify before the world the reputation he had acquired for possessing an asocial disposition, and so he burst forth in Jeremiad lamentation as follows: "O ye who consider or declare me to be hostile, obstinate or misanthropic, what unjustice ye do me!

"Ye know not the secret causes of that which makes such an appearance. . . . What a humiliation when any one standing beside me could hear at a distance a flute which I could not hear; or any one heard a shepherd singing and I could not hear a sound. O ye! When ye shall have read this, think how ye have wronged me."

It is not difficult to understand why deaf persons should develop certain quirks in personality; these are natural reactions from experience with a thoughtless, heartless world. But much thought has been given the existence of one particular trait, which, reasoning by analogy, one would not catalogue as an altogether natural one. It has been observed that almost invariably those who have difficulty in hearing take the greatest pains to conceal the defect.

Such behavior is not common with regard to many of the other ills to which human flesh is heir. People habitually bore each other with their sinus, their stomach and their liver troubles; and when it comes to the subject of operations there is the keenest kind of rivalry to display their wares.

The peculiar attitude of the hard of hearing is strikingly exemplified in their aversion to the use of artificial hearing aids. Certainly there is no similar objection to the use of eyeglasses in those who have naturally poor vision.

The shame complex of the deaf may perhaps have its root a long way back in the false doctrines of our ancestors. Deafness in ancient times was accounted a stigma of the deepest dye, and the subjects of it were treated as outcasts of society. Even in highly enlightened early Greece and Rome, deaf mutes were put in the same class as idiots and imbeciles. Aristotle, keen observer though he was, misunderstood the common association of loss of speech with loss of hearing and held that it was evidence of a lowered intellect. His great authority is responsible for the persistence of the idea with all its dire consequences throughout the Middle Ages and in some degree into all but the most recent time.

Deterioration of hearing is far more prevalent than is commonly believed.

The introduction of the audiometer has brought this discovery to light. Previous to this the means for testing hearing defects were crude and unreliable. The audiometer is an electrically operated instrument which measures with mathematical precision the exact degree of hearing in either ear. By its use many cases of hearing impairment have been disclosed which otherwise would have been overlooked because they were only of slight degree or were limited to only one ear. Systematic examinations of large groups in all classes show that about one out of every ten persons has a notable impairment of hearing in one or both ears.

Now all cases of impaired hearing fall roughly into two classes; namely, those due to diseases which affect the nerve of hearing and those due to diseases in that part of the auditory organ which is concerned with conducting the sound to the nerve.

The distinction is an important one, for loss of hearing due to nerve trouble is but slightly susceptible to help either by treatment or by hearing aids, while the conductive type can often be helped by treatment and always by hearing aids.

Fortunately nerve deafness constitutes a small minority of the total cases, while the overwhelming majority are due to some sort of trouble in the conductive machinery of the ear. In most of this type the hearing difficulties are slight, not enough to cause anxiety or to interfere with the ordinary transactions of life; but in some cases of the so-called conductive ear disease the loss of hearing may be of great severity.

Beethoven's deafness was no doubt of the conductive type. He had in all probability what is now designated otosclerosis. This peculiar disease affects the bony capsule which houses the organ of Corti. Sooner or later otosclerosis involves one of the ossicles of the ear, interfering with the transmission of the sound waves.

Beethoven's biographers tell us that he himself had discovered that by the use of a wooden rod, one end of which was held against the side of his head and the other against the box of a piano, he was able to hear the music. This is called bone conduction of sound and is evidence

Curious Stories About Health

The Seventeenth of a Series by MELVIN PRICE ISAMINGER

QUARANTINE, DERIVED FROM "QUARANTE," AN ITALIAN WORD MEANING FORTY
VENICE ESTABLISHED THE PRACTICE OF DETAINING INFECTED SHIPS IN THE HARBOR FOR FORTY DAYS IN THE FOURTEENTH CENTURY

O. M. Olsen

QUARANTE (Italian), quadraginta (Latin) and quarantine, the three "Q" words which have perpetuated the origin of the modern practice of protecting the well from the ill, tell a story of the time in the fourteenth century when infected ships were detained in the harbor of Venice for forty days.

MOSES and other thinking ancients "laid the spawn" for it many years before. Raging plague caused other Mediterranean cities, Marseilles and Genoa, to observe it.

Quarantine is deeply rooted in the fear of infection. The Black Death dealt cards of fright, and the "horn of the leper," though unfortunate for the blower, blew the note of a civilly dead person. But its echo signaled the success of leprosy eradication from Europe and comparative safety from this malignant curse the world over.

---

of an intact hearing nerve. In such cases, hearing devices are of value. Today instead of a wooden rod, as used by Beethoven, new and wonderful electrical instruments have become available.

Hearing aids are commonly compared to glasses to aid vision, but the analogy is not altogether perfect. Most visual troubles for which eyeglasses are used are due to malformation of the refracting media of the eye. Such conditions do not stop the penetration of the light rays but only change their direction. The eyeglass lenses simply modify the direction of the light rays and focus them properly on the retina.

But loss of hearing for which hearing aids are employed is due to an actual obstruction in the pathway of the sound waves. Therefore, either some means must be employed of so increasing the power of the vibrations that they force their way past the obstruction, or else a way must be found to reach the hearing nerve without passing through the regular route. Sound waves, it must be remembered, can travel not only by air, as in the human ear, but also effectively through a fluid or solid medium. *(Continued on page 88)*

APPENDICITIS

By Frank H. Baehr

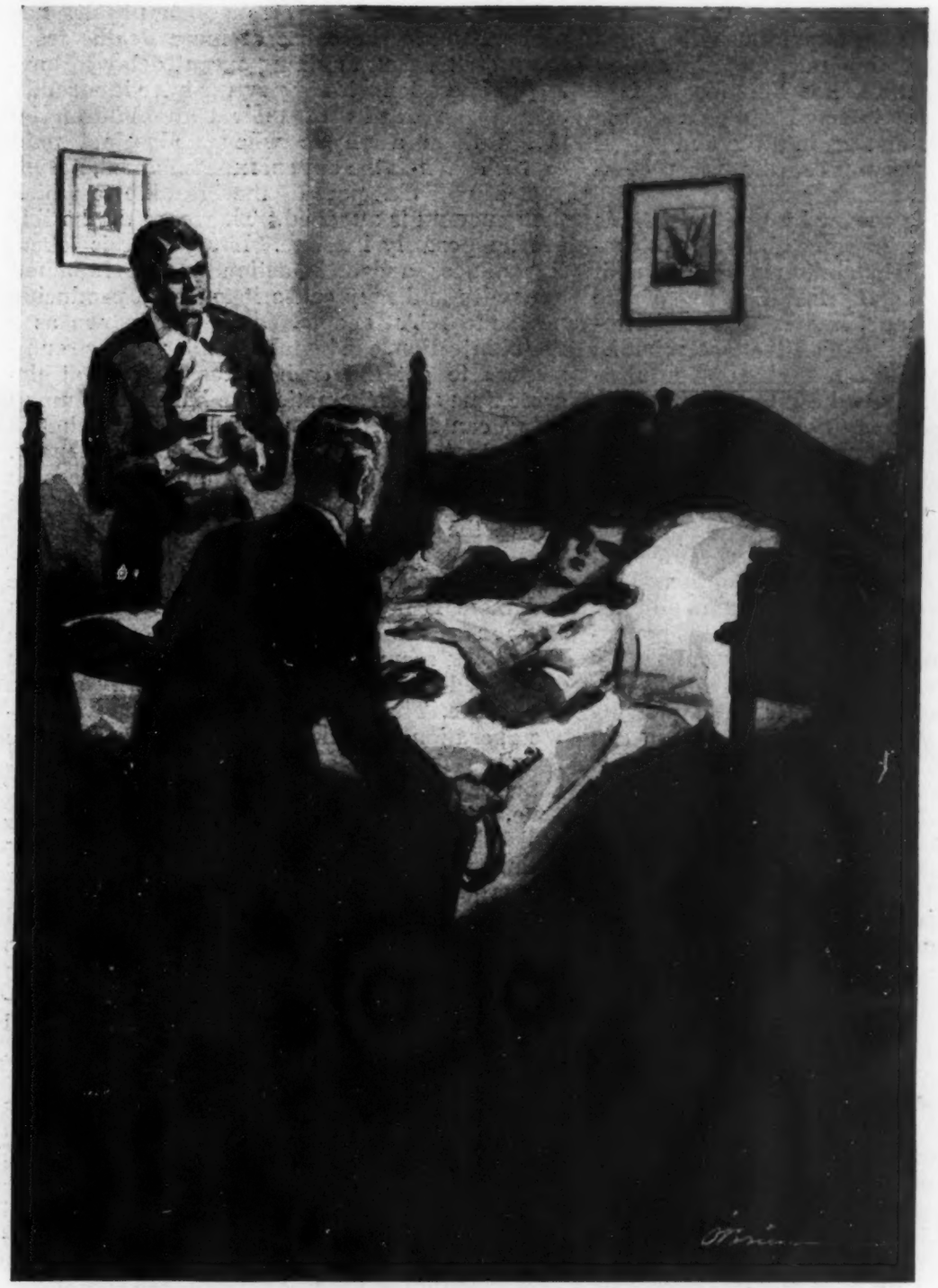
APPENDICITIS is so common that nearly every one has come into more or less close association with it, either through personal experience or through that of a member of the family or a friend. The ideas of many persons regarding the disease are, however, for the most part quite hazy and inaccurate. A better understanding of its nature will remove fear or dread and encourage people to call a physician at the earliest possible moment. In competent hands, appendicitis is easily and quickly relieved. The sooner a reputable surgeon is notified, the better it is for the patient.

Much accurate knowledge is today possessed regarding the functioning of the body in health and disease. Much is known about the cause of many diseases, the manner in which they harm the body, and the logical and rational way to combat them. Nowhere is this better illustrated than in appendicitis; for its cause is known, its varied signs and symptoms are understood and its proper treatment, based on common sense, is logical and rational.

Appendicitis is an inflammation of the appendix. The appendix is a wormlike organ, about 3 to 5 inches long, attached to the large intestine. The appendix can be located in about 80 per cent of the people in this way: Put the right hand on the right hip, with fingers pointing across the abdomen. The appendix lies where the tip of the third finger touches the abdomen. This area may be called the right lower section of the abdomen. It is not unusual, however, for the appendix to be located in the right upper section of the abdomen, the lower portion of the back and the left lower section. These three other locations break down the popular idea that the appendix is always to be found in a certain spot. It is because of this that a careful examination is extremely important. Scientists claim that when our ancestors walked on all fours the appendix had a definite use. Now, however, it is of no use to the body and is a frequent source of danger.

There are three causes of appendicitis: Disease-producing germs from inside the intestinal tract may enter the appendix and set up an inflammation. Diseased teeth or tonsils may cause appendicitis, or the appendix may become involved following a general sickness such as measles, mumps, chickenpox, scarlet fever, influenza and others. If a nearby organ, such as the right ovary or the right fallopian tube in a female, is infected, the inflammation may spread to the appendix.

In 50 per cent of the cases of appendicitis the victims are between the ages of 10 and 30 years. The youngest I have seen has been an infant of 14 months and the oldest a man of 86 years. Appendicitis is equally common in the two sexes; and in some cases, heredity has some influence. It is surprising how many persons have the false idea that seeds are the cause of appendicitis. Some years ago, when surgeons found small, hard pieces of intestinal matter in an appendix, they mistook them for seeds. By laboratory methods it has been found that this idea is incorrect. Seeds are rarely the cause of



IN COMPETENT HANDS, APPENDICITIS IS EASILY AND QUICKLY RELIEVED. THE SOONER A REPUTABLE SURGEON IS NOTIFIED, THE BETTER IT WILL BE FOR THE PATIENT.

appendicitis. The disease is common among civilized people, whose diet is extensive and varied. Among the less civilized people, such as the Eskimos and Abyssinians, who live on simple diets, it is rare. Heavy lifting, straining or a blow on the abdomen may cause an acute attack of appendicitis, but even this is practically impossible unless the appendix was already in an unhealthy condition.

There are two types of appendicitis, acute and chronic. By acute is meant sudden. In acute appendicitis any one or all of the following symptoms may be present. Pain is usually the first and outstanding symptom. It may be in the right lower section of the abdomen, where the appendix is usually located, but the pain is frequently in the pit of the stomach, the area directly above the navel. It is cramplike, and finally, after a few hours, it goes down to the right lower section of the abdomen. As a rule, the pain gradually becomes more severe and constant. Usually after the beginning of the pain there is a feeling of nausea. Often the patient vomits. Chills and fever may be present, and constipation frequently is. Another symptom which is not uncommon is the belch-

ing of gas. If intense abdominal pain should suddenly stop, just as the pain usually stops when a boil breaks, this may be a warning signal that the appendix has burst, as a boil would erupt, and the infected contents of the appendix have been thrown into the abdominal cavity, setting up peritonitis, the most commonly fatal of all diseases.

To explain what is meant by peritonitis it is necessary first to describe some abdominal structures. The inside of the abdomen is lined with a thin membrane like the inside lining of the eyelid. This membrane, known as the peritoneum, also surrounds the digestive tract; that is, the stomach and intestines. It gives off a lubricating fluid which allows the intestines to glide over one another just as the eyelid glides over the eyeball. If an inflamed appendix bursts, the disease-producing germs rapidly set up a severe inflammation of the peritoneum, causing paralysis of the intestines. Also, the poisons from the disease germs enter the general system and produce a general blood poisoning. If a person has had an attack of acute appendicitis, has weathered the storm and still has his appendix, he carries around a diseased organ that is like a smoldering fire which may burst into flame at any moment. Usually the following attack is more severe. Yet such suffering can be avoided.

THE second type, chronic or recurrent appendicitis, has a wide variety of symptoms. By chronic is meant an infection lasting over a period of time. Some of the symptoms of chronic appendicitis are similar to those of acute appendicitis, but they appear in a milder form. In many cases the patient neither has nor has had any pain or discomfort in the region of the appendix but consults his doctor because of so-called indigestion or stomach trouble. An abscessed tooth, even though it gives no discomfort, may produce poisons which can be carried to other organs of the body, thus causing harm. In the same way, a chronic appendix may produce poisons which may be carried to other parts of the body, causing rheumatism, neuritis, heart trouble and many other ailments. A well recognized fact is that chronic appendicitis can lead to an ulcer of the stomach, gallbladder disease and gallstones. Which seems more reasonable, to have a prolonged series of sicknesses or to undergo a brief operation?

Appendicitis in children is much more difficult to diagnose than in adults and is more serious. Usually in children there is more nausea and vomiting. There may be no pain and no fever. Chronic appendicitis is more common in children than it has been believed to be in the past. Many children who suffer from indefinite digestive disturbances, who have a poor and finicky appetite, or who are persistently undernourished, are suffering from appendicitis.

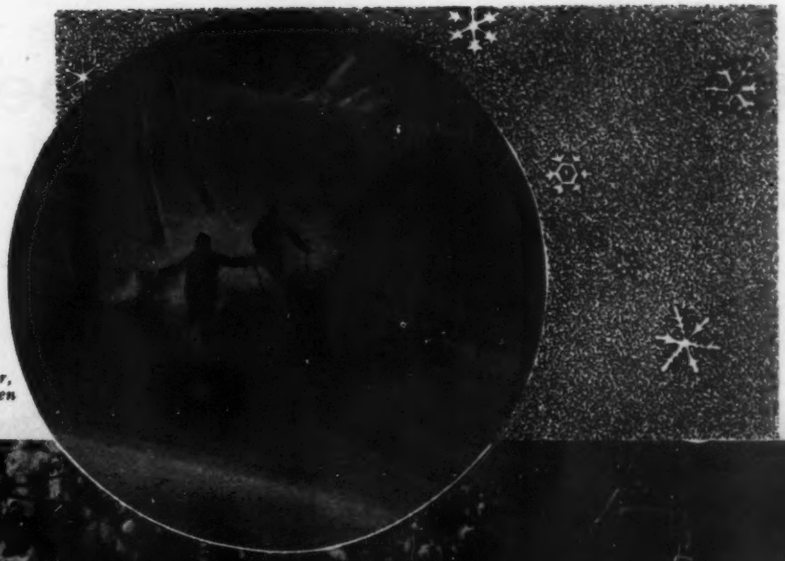
The taking of castor oil or other physics has probably been the cause of more deaths from appendicitis than anything except delay in having an operation. Many parents have innocently caused the deaths of their own children by giving them a physic when abdominal pain existed. When the appendix is inflamed, nature puts at rest that part of the intestine to which the appendix is attached. Therefore the bowels are temporarily inactive. If a physic is taken, it produces a drastic action on the inflamed appendix and may cause it to burst, producing peritonitis. An enema, commonly known as a rectal injection, can be taken under such circumstances to get the desired results and at the same time cause the patient no harm. No human being can foretell from hour to hour what is going to take place in an inflamed appendix. Chronic appendicitis may at any time become acute. Why not get this bothersome appendix out of the way in the first place?

THOSE whose experience is largest and whose judgment is best urge an immediate operation as soon as the diagnosis is made, even though the attack seems a mild one. Everything is to be gained and nothing is to be lost by such a procedure. The patient who has had an immediate operation after the diagnosis has been made greatly reduces risk, has the least possible discomfort, is confined to the hospital for a shorter time, removes the certainty of another attack and eliminates the danger of serious complications which so often follow delay. There are numerous cases on record in which massage or the rubbing of the inflamed spot have caused an inflamed appendix to burst, with peritonitis resulting. No case of appendicitis has ever been cured by these methods. No case of appendicitis has ever been cured by medicines. Surgical removal of the appendix is the only treatment.

A false notion is that the length of the abdominal incision has an important bearing on the severity of the operation. The question is often asked, How many stitches were taken? Through a small incision the surgeon may overlook existing trouble; and, as a small incision does not heal any quicker than a fair sized one, it is considered good surgical judgment to have a fair sized incision so that the surgeon can completely examine the involved area. "Intestinal flu" is commonly heard of, but this condition in itself is rare—it frequently is in reality an attack of appendicitis.

The death rate of appendicitis has increased one-third in the last ten years. Yet this situation can be prevented. These mortalities are due mostly to the taking of physics and the delay in having an operation. An abdominal pain which persists for more than three hours is usually serious. Go to bed. Don't take a physic. Don't delay in calling your doctor. Have an immediate operation if your doctor so advises.

FURROWED IS THE FACE OF OLD KING WINTER



E. Gyger, Adelboden

Philip D. Gendreau

R. Schudel, Grindelwald

SKIING and Its Health Aspects

By WALTER MOSAUER

Photos: E. Meerkämper, Davos

THOUSANDS OF AMERICANS OF ALL CLASSES AND AGES FROM THE TEENS TO THE FIFTIES AND OVER LEAVE THE CITIES EVERY WINTER WEEK-END FOR THE SNOW-CLAD MOUNTAINS, THERE TO ENJOY ONE OF THE FINEST SPORTS MAN EVER INVENTED.

THE LAST few years in America have witnessed a phenomenal growth of interest in skiing, which has long been a national sport of the first order in the Alpine countries of Europe. A few years ago the American public knew of skiing only as jumping, as the daring feats of a few Scandinavian experts, professionals or semiprofessionals, performing on mammoth ski jumps created by the desire for sensational records. Now thousands of Americans of all classes and ages from the teens to the fifties and over leave the cities every winter week-end by motor and train for the snow-clad mountains, there to enjoy one of the finest sports man has ever invented. Numerous ski clubs have sprung up all over the country wherever there are hills and mountains big enough to afford one the incomparable thrill of smooth, velvety, whizzing descent on the slim boards. In most of these clubs the main emphasis is now on ski touring or cross-country skiing and on downhill and slalom racing, with jumping playing a somewhat secondary rôle. Numerous colleges have ski teams competing regularly. Among them the team of Dartmouth is most famous. Competition, however, is numerically unimportant as compared with the many to whom skiing is the most beloved form of outdoor recreation, a sport that opens to them the unfathomed glory of snowed-in woods, of silvery peaks and long slopes of glimmering white. Once the lover of the mountains has realized that this can carry him up into his favorite country and down again in fluent, swishing runs, he becomes a ski addict forever.

RECREATIONAL skiing is undoubtedly one of the most healthful sports in existence. The vigorous exercise in brisk, pure winter air has a most exhilarating effect. In skiing on the level and uphill with the aid of ski poles, not only are the leg muscles active, but arms, shoulders, back—

all get their workout in the coordinated rhythm of gliding propulsion. The rate and depth of respiration are increased, and the crystal air is breathed deeply into lungs which had previously to be contented with the stale impure atmosphere of the city. The cold weather together with the exercise is beneficially stimulating to the circulation. If skiing is done at altitudes of 5,000 feet or over, as is often the case, the usual effect of an increase in the number of red blood corpuscles takes place. In addition to all these benefits the weather up on the mountains is often clear and sunny when heavy fog covers the lowlands, and the fortunate skier bathes in brilliant sunshine high above a sea of clouds blanketing the cities. The ultraviolet rays passing with undiminished strength through the rarefied atmosphere, and the reflection of the sunlight from the snow fields quickly produce a healthy tan which evokes the envy of the pale faces in the wintry cities. In the spring when skiing is at its best at higher altitudes, prolonged sunbaths between thrilling runs delight the skier.

Troubles and cares of every day, the treadmill of the workaday world, are forgotten long before one even starts skiing; just packing the equipment and waxing the skis fills one with the anticipatory joy and takes one's mind off any odious matters. Out there in the purity of the wintry mountains there is no thought of the city, only pity for the people who remained at home. When the skier returns, tired but happy, he raves at least until Wednesday about the past Sunday's skiing, while he is already beginning to plan definitely for the next outing. Thus the psychologic benefits of skiing are great indeed.

LIKE all vigorous outdoor sports, skiing has a certain element of danger, but one far less serious than the nonskier is inclined to believe. Falls are usually quite harmless. In the soft velvety snow of winter, falling is like sinking in a downy, though cold, bed. Even on hard snow, falls rarely injure the skier because the impact is sliding at an acute angle. Still, caution is necessary. In four seasons of my coaching the competitive ski team of the University of California at Los Angeles, the skiers of the Ski Mountaineers of California and of the Sierra Club there have been no serious accidents whatever. This is at least partly due to my continual emphasis on control and steadiness: "Technic first, then speed."

Nobody, however, can guard himself with 100 per cent certainty against injuries; and while it is much pleasanter to think of swishing "christiania" turns and speedy tempo turns than of fractures, it is sometimes a vital matter to know what to do in case of an emergency. Every serious skier ought to be familiar with first aid measures and carry an adequate first aid kit at all times.

Let us first consider the mechanical injuries or traumas and later such pleasantries as freezing, snow blindness and so forth. We must always keep in mind that prevention or prophylaxis is a thousand times better than the best therapeutic treatment. It is possible to a certain extent to guard against several typical ski injuries; a general rule, of course, is not to exceed one's limitations of technic and to avoid skiing out of control. Most severe injuries happen to overdaring, foolhardy skiers with little regard for proper style.

A COMMON, relatively harmless but annoying injury happens to those who ski without gloves or mittens, especially in warm weather on granular spring snow. They skin their knuckles and fingers just over the joints. These abrasions, more or less deep, heal only slowly, because the flexing and straightening of the fingers in every manipulation disturb the healing process. The best thing to do is to wear mittens in every downhill run, even in warm weather; a pair of thin unlined canvas mittens suffices. If you have skinned your knuckles apply a soothing ointment, place a small square of sterile gauze over the wound, and cover with adhesive tape. Never put adhesive tape directly over an open wound. That is worse than no dressing at all; yet it is often done by misinformed but well intentioned persons. For all smaller wounds, prepared strips of adhesive tape and gauze in convenient size are handy. Quite often I have seen abrasions cover most of the forearm in "short sleeved" skiers. For this also, ointment should be placed over the raw surface and a sterile bandage wrapped around the arm. Other minor wounds or cuts are gently cleaned of possible foreign bodies and larger impurities; the margins are painted with iodine, and gauze and adhesive tape are applied as previously directed. Deeper gashes or gaping cuts may require stitching, which is to be done, of course, by the physician only; for first aid the margins of the wound can be pulled together with adhesive tape. Irregular wounds with deep pockets and recesses, which do not drain freely, are much more likely to become infected and purulent because the bacteria thrive in the stagnant lymph and blood in the pockets. Therefore, if the skin is undermined and overhangs the wound as a flap it is usually advisable to remove it with a pair of sharp nail scissors which have been sterilized by being drawn through a flame.

Serious, deep wounds with profuse bleeding do not often occur in skiing; if they do, the application of a tourniquet between heart and wound is indicated besides the regular wound dressing, consisting of gauze packed into the wound and bandage. A hemostatic forceps, used to stop the pulsating, squirting bleeding from a severed artery, should be part of the first aid

NUMEROUS SKI CLUBS HAVE SPRUNG UP ALL OVER THE COUNTRY WHEREVER THERE ARE HILLS AND MOUNTAINS BIG ENOUGH TO AFFORD ONE THE INCOMPARABLE THRILL OF SMOOTH, VELVETY, WHIZZING DESCENT ON THE SLIM BOARDS.

equipment of ski huts and winter sports hotels. Without it, it must be attempted to stay the arterial bleeding either by application of a tourniquet or by compressing the artery with the finger against an underlying bone.

Fortunately, skiing injuries are not often open wounds with a break of the protective layer of skin, which would entail the ever present danger of infection. More commonly they are contusions or bruises incurred when the skier lands violently, not on his skis but for instance on the greater trochanter, a process of the thigh bone. Such bruises are accompanied by bleeding into the subcutaneous tissue producing the well known discoloration passing from blue into green, brown and yellow. Cold compresses and the serious attempt not to fall on the same spot form the best treatment. Sometimes, however, the blood is poured into the subcutaneous tissue in great quantities, and the physician may have to drain it out with a syringe.

THE great majority of injuries in skiing concern the bones and joints. They are mostly due to unnatural, forced movements between the parts of the body, beyond the normal limitations of mobility. The skier wants to do a stem turn or christy and turns his trunk strongly in the desired direction; at the same moment his ski has caught for some reason, possibly because he is edging it wrongly, so that the ski does not follow the motion of the body. The foot is fixed firmly to the boot, and this results in a terrific spiral twist imparted to the leg. The injury may be more or less severe, corresponding to the speed of the skier, the violence of his turning motion and other factors. In the least serious accident of this type the capsule of the knee joint and the ligaments of the knee, those strong bands of tough fibrous tissue connecting the thigh bone to the two bones of the lower leg, are strained and slightly damaged; they will be painful, and there may be bleeding into the surrounding tissue and into the cavity of the joint, so that the joint becomes less movable and the region of the joint appears swollen. Such a case is referred to as a sprained joint; the ankle region is often affected by sprains, especially with the Arlberg style of skiing which features the "christiania."

If the two bones were moved against each other with greater violence, one of them might break the capsule surrounding the joint and slip out of the normal contact with the other bone. In a dislocation of a ball-and-socket joint, such as the shoulder, the socket is then empty and the rounded head of the arm bone may be felt in a wrong position. This injury can happen when the ring of the ski pole catches on a branch while the skier is passing through the woods; the arm is then pulled and twisted out of its socket. The same thing occurs if the pole is used to pivot around it in a turn and gets stuck in especially hard-crusted snow.

The knee is particularly often involved in sprains and dislocations in skiing; it seems poorly adapted to the torsions which most skiing turns require. The articular surfaces of the thigh bone or femur, two large, rounded balls of bone covered with cartilage, do not fit well to

the flatter surfaces on the top of the shin bone, or tibia, on which they rest. To improve this fit or rather misfit, two crescentic pieces of cartilage, the so-called semilunar cartilages, are interposed. Each of them is fastened at its ends to the top surface of the shin bone. On the inside of the leg a tough fibrous ligament stretches from the femur to the tibia, and the inner semilunar cartilage, or meniscus, is fused to it. If the knee is twisted beyond its capacity the ligament is pulled, and it in turn pulls the semilunar cartilage into a wrong position, where it is pinched between the two bones or even tears it loose from its attachment to the tibia. The consequence is quite a serious disablement, and the meanest part is the tendency of these original knee injuries to frequent recurrence at slight provocation. Unfortunately, this is one of the commonest ailments of the skier. Sometimes it is necessary or at least advisable to open the knee from the inside of the leg and to remove the rebellious cartilage. This is a major operation but may have quite successful results.

What can be done to prevent these injuries? First of all, the skier must strictly avoid forcing his turns violently; all movements in skiing should be smooth, gentle, fluent, without any sudden jerks or violent twists. Naturally he will fight against a fall and attempt to regain his balance; but once he is hopelessly off balance he should abandon a futile struggle and let himself go relaxedly, not with tensed muscles. This is the opinion of most skiers. Helmut Lantschner, however, one of the greatest skiers of Europe, who speaks from experience in a long and successful international racing career, advocates tense legs in a spill. He'd rather break his skis than his legs, and I don't know whether I can blame him much! His theory is that tense muscles protect his legs if the skis catch so in the snow that either skis or bones must "give" in the ensuing torsion.

WHAT should be done if a sprain or dislocation has occurred? With a sprain, the skier might still get home under his own power; but in cases of a dislocation of knee or ankle that is out of the question. A sprained joint can be taped up immediately after the injury, to keep the rapidly developing swelling down and to fixate the joint so that little motion is possible. To do this properly will require a good many strips of tape firmly applied. Still better is an elastic bandage; if this is moistened before using, it will shrink while drying on the warm skin and will compress and fixate the joint quite efficiently.

Little can be done with dislocations out in the snow. The bones are usually so locked in the wrong position and held there by contracted muscles that it takes a physician to "set" such a joint properly. The extremity should be immobilized as well as possible by tying the arm to the chest, in shoulder dislocations, for instance, to reduce pain and avoid further damage and to assist in rapid transportation to the nearest medical help. Dislocations are much easier to "set" soon after the injury than after delay.

An injured skier who is unable to proceed under his own power can be transported on an emergency toboggan constructed from his and a companion's skis which are laid on the snow side by side and tied together in front and at the bindings. The whole toboggan can then be pulled by means of a piece of rope or a ski pole fastened to the points of the center skis.

If the force of the momentum or of the skier's own motion is especially violent and is suddenly checked, an even more severe injury than a dislocation, an actual fracture of one or more bones, may result. The sudden terrific twist imparted to the thigh bone when a skier swings his body inward and around in a "telemark" and his leading ski fails to follow the motion may break the femur in a spiral fracture. Such a torsional fracture may involve in other cases the bones of the lower leg, tibia and fibula. Or if the skier attempts to check his fall with outstretched arm, he may fracture the humerus or upper arm bone. If he falls forward and lands with his chest on the forearm he may break the bones of the latter with the weight of his own body. The forearm is also broken if it is pushed into snow with a hard crust; this holds the arm in a viselike grip while the body continues to slide with the momentum of the fall.

COMMON skiing fractures affect the bones of the hand, specifically the metacarpals. These may be broken when the skier falls on crusted or icy snow or on bare, frozen ground with an insufficient covering of snow, particularly if he maintains a firm grip on his ski pole. I myself broke all but the first metacarpals in my right hand in just such an accident.

In jumping on the colossal ski hills, which the desire for sensational records has created, the force of the landing is terrific. After a flight of 250 or more feet, a skier weighing 160 pounds has a tremendous momentum which corresponds to a force of many thousand pounds in case his movement is suddenly stopped. If he does not land on springy, elastic legs, but stiffly, he snaps his femur in two in a transverse fracture because the bone is bent beyond its limitations of elasticity.

Another type of fracture is due to the fact—somewhat incredible to the layman—that often under certain stresses a muscle or ligament will not tear, but bones will break. Thus, in sudden contractions of the thigh muscles the pieces of bone to which the tendons attach will tear loose from the rest of the bone. Or the ligaments of the ankle joint, instead of tearing themselves, will pull off the lateral malleolus, the outer ankle of the fibula. *(Continued on page 80)*

War Against Dental Decay

THE TOOTHBRUSH MUST BE CLASSED AS ONE OF THE VALUABLE AIDS IN THE PREVENTION OF TOOTH DECAY.

By
N KOBRIN

EVER SINCE man has walked on the face of this earth, war and dental decay have been part and parcel of his existence. War implements have been found in excavations of all prehistoric cities, and the ravages of dental disease have been discovered in most skulls of ancient man. Dental troubles are not purely the result of modern civilization. Bridgework, crowns and other forms of dental restorations were made during the Etruscan period, from 800 to 100 B. C. In the various museums of Europe may be seen the products of Phoenician, Grecian and Roman dentistry. The Middle Ages abounded with hundreds of legends and superstitions concerning teeth. Some of these still are respected. Such appellations as "wisdom teeth" to indicate the third molars or "eye teeth" to describe the canine teeth are the carry-over to our own time of the relationship generally accepted between tooth and wisdom, tooth and eye. The Middle Ages, too, had a patron saint, Saint Appolonius, to appeal to in times of dental distress. Following the proper ritual, the sufferer was sure to be relieved of the toothache.

Happily for those of us who live in this day and age, the world has moved forward in its knowledge of the human body and its ailments. We know a great deal now about diseases, their causes and effects, the remedies for treatment and, what is most important, how to prevent a host of them. Pasteur and Lister have made their invaluable contribution of the germ causation of disease, and the theory of medicine has undergone a revolutionary change. The doctor today not only seeks to give aid and comfort directly to his sick patient but attempts to eradicate the cause of the trouble, root, stem and branch, even before it becomes manifest if possible. By so doing he has in large part eliminated smallpox, diphtheria and tuberculosis.

IN THE war against disease, dentistry has given the world its discovery of anesthetics. It has refined its mechanics of diagnosis and perfected its principles of practice. It has invented many remarkable types of restorations and devised a multitude of ways and means to expedite and make easy the operation in the dental chair.

But it has made no great headway against the ravages of dental decay. The reason for that has in great measure been highly psychologic. As far as popular opinion goes, tooth troubles, like the poor, we shall always have with us.

Consider, for instance, the child 4 years of age. A cavity develops in a molar tooth. Do many parents ever dream of looking into the child's mouth to see what may be going on there? Isn't it the ordinary thing for the mother to say, "Oh, well, it's only a baby tooth." Then the cavity grows larger and larger, for teeth do decay irrespective of whether they are the deciduous or "baby" teeth or the permanent teeth. The decay continues until the ultimate abscess ensues. The child probably spends a few restless nights. She stops eating because it hurts to chew the food. Then and only then, do mother and daughter, greatly agitated, present themselves in a dental office, and the order is given, "Take the tooth out." Unfortunately that is all that can be done. And there lies the rub. For while the rotted tooth is really bad and is better out than in, frequently its removal does irreparable damage to the growing jaws and teeth which at this age are in the constant state of development. For it must be borne in mind, and it cannot be emphasized too emphatically, that the baby teeth have two functions, that of chewing and that of stimulating the further continuous even development of the jaws and teeth. Dentists see many cases of crooked teeth and ugly mouths due entirely to the too early loss of baby teeth.

When the child of 4 grows into maturity and discovers, as often happens, that she has a cavity in a back tooth and has neglected it until she has had to take time from work to see her dentist, is she terribly upset when she finds she has to submit to an extraction? Oh, no. "O.K., doctor, take it out. It's only a back tooth. Doesn't show." And here again is the rub. Of course that hollow space will not show when our lady smiles. But dentists know of many things which will follow in the train of that lost tooth a number of years later. The teeth will start shifting from their normal natural positions in an endeavor to fill up the open gap. Food will jam the open space and pack into the areas between the teeth that have moved, and these food packs will induce cavities and predispose to pyorrhea. The pity of it is that in both of these cases this tragic sequence could have been prevented by the simple expedient of timely examination and a simple inexpensive filling.

I cite these two cases for a definite reason: Dental decay is the most prevalent of all the diseases to which human flesh is heir. Of the thousands of different conditions with which medical science is acquainted, none is so universally prevalent, so democratic in affection, as is dental decay. An examination of the teeth of the children in any school in any city in any country will reveal that in each case at least 90 per cent of the children present decayed or filled teeth. Furthermore, only one out of eighteen first permanent molars reaches maturity undamaged; that is, seventeen out of eighteen first permanent molars in all mouths either are missing or have been filled.

It is the generally accepted theory within the dental profession that tooth decay is brought about by the acid which is produced when the germs in the mouth act on the stagnant food materials found there. The enamel of the tooth is dissolved by this acid, and a cavity is produced. Germs need moisture and food. Moisture is always present in the mouth, and food is introduced for purposes of elemental sustenance. Of course no sensible person could preach the doctrine of semistarvation in order to prevent dental decay. On the contrary, food is highly essential to the defense mechanism of the mouth. Aside from all the high powered foods, rich in lime salts, vitamins and calories, the diet should include foods that require hard chewing, such as apples, lettuce, celery, toast or stale bread. Civilization has gone soft on eating; the favorite mushy foods are tasty, but they do not require any distinct effort to masticate. That makes for a poorer quality of bone in teeth and consequently less resistance to decay. Of course, vitamin D, milk and orange juice are now prominent in our diet, and there is no doubt of their value. But surely a beautiful house must be maintained. It must be constantly well kept and carefully managed. You would not think of giving your child milk in an unwashed glass. So it is equally as important to give the teeth and jaws the food that will maintain their health externally as it is to give them those elements in the food that will enter into building them up internally into strong bone.

The toothbrush must be classed as one of the valuable aids in the prevention of tooth decay. At the Dental College of the University of Pennsylvania, Professor Appleton has done some fine research work on the question of the number of bacteria in the mouth following the brushing of teeth. His study included several hundred cases. The greatest number of bacteria were found in the mouth in the morning immediately on arising. After the teeth had been cleaned the number of bacteria dropped more than 50 per cent; by the noontime meal the bacterial count rose 20 per cent and dropped that much after the brushing, increasing again before dinner up to 75 per cent, after which the count fell about 25 per cent when the teeth were cleaned. The crux of Professor Appleton's observations is that by brushing the teeth one can cut the bacterial content in the mouth by

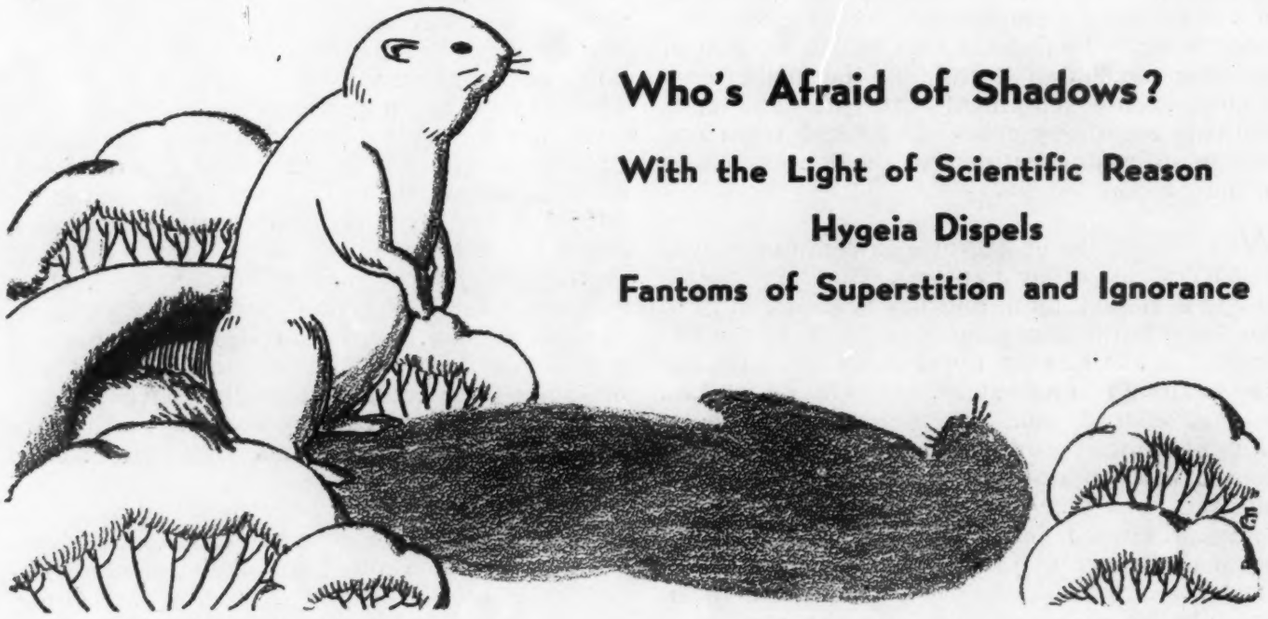
from 25 to 50 per cent and eliminate by that much the possibility of tooth decay.

The sore spot in this defensive mechanism against tooth decay is the truism that there is no acquired immunity to dental disease, no matter what praiseworthy home measures or diets are used. To hold off the insidious results of progressive dental decay it is essential to go to the dentist and have the teeth taken care of by him. Different rates of caries have been observed in different members of the same family, all of whom give their teeth about equal kind of care. This indicates the presence of an undetermined factor in the making of cavities.

The New York City Board of Health in its dental clinics treats children from the kindergarten through the second grades. Dr. McCall, director of the Guggenheim Clinic, declares that preventive dentistry must begin with the preschool child. Dr. Hyatt, professor at New York University Dental College, states that since cavities usually develop in the imperfections of the back teeth, these should be immediately opened up and filled before any decay occurs, so that no extensive or irreparable damage to the tooth may eventualize.

The best minds in the dental profession have constantly and unequivocally agreed that the best single means in the eternal war against tooth decay is early dental care. Medicine has provided various preventive measures such as the Schick test for diphtheria and vaccination against smallpox; but until some such immunization process is discovered for protection against dental ills, early dental care must remain the weapon of defense against bad and aching teeth, abscesses and unhygienic mouths.

The profession of dentistry feels that healthy teeth are essential to the maintenance of a real sense of health security. Because early dental care is of inestimable value and because prevention is always far better than cure, dentistry has adopted as its slogan "Conservation of Teeth," rather than "Restoration of Teeth."



Who's Afraid of Shadows?

With the Light of Scientific Reason

Hygeia Dispels

Fantoms of Superstition and Ignorance

From the February Issue:

"The desire to be thin is exploited by advertisers and commercial producers, just as the desire to be well is exploited by 'patent medicine' promoters, and the desire to be rich, by the stock promoters."—*Jane Foster* in "Dieting Daughters."

"Some persons have received circulars through the mail advertising remedies to dissolve gallstones. This often has tragic results because gallstones cannot be dissolved."—*Dr. Frank H. Baehr* in "Gallstones: Some Questions Frequently Asked and Their Answers."

"The nervous dyspeptic is frequently the careless eater whose palate decides the type of meal which he chooses."—*Dr. Edwin A. Cameron* in "Are You a Nervous Dyspeptic?"

"There is a fallacious opinion held by laymen that exposing the scalp to the sunlight makes the hair grow more thickly and is beneficial. The contrary is the case, particularly if the person has a tendency toward premature baldness."—*Dr. Joseph Jordan Eller* in "Cosmetic Care of the Skin."

"Pearly white teeth have been considered a mark of beauty since early days. . . . Dentists know that the natural shade of a person's teeth may vary from a creamy white to a grayish color [and] that the shade cannot be changed by any harmless means."—*Samuel M. Gordon* and *Eleanore B. Dufour* in "Tooth Bleaching Quackery."

Big Chief Jumping Frog Is Ambushed by Varmints

By PHILIP JARED

THERE is a saying that if one does nothing, nothing ever happens to one. I have my doubts, but the proverb is certainly true in the Answith family. I am thinking in particular about Quiller, whose 9 year puppy curiosity and awkwardness were always making things happen to him.

In order to be sufficiently important in this world he resorted to the time-tested method of being an annoyance, a nuisance and at times a minor catastrophe. Many times I have examined the truth in the adage of sparing the rod and spoiling the child. I know how the newer fangled psychologists gasp and go into horrified shudders when some guardian of family harmony forcibly impresses on a little savage that there are others with rights to domestic tranquillity, guaranteed by the Constitution of these United States. Old Teaser knew nothing of this and would have considered such folderol a stricture on his personal liberty. There are grown-ups like that but . . .

Old Teaser had acquired a fairly large repertoire of unpleasant vocalizations. He could even imitate an aeroplane doing a power dive. His machine gun crew in operation was murderous to Mrs. Answith's ear drums. He was just as likely to transform himself into a speeding fire department siren and claim right-of-way through Judith's room and serenity as he was to incarnate the body and protesting soul of a dog with a tin can tied to its tail and zip devastatingly through little Claribelle's meticulous playhouse, to end up by derisively singsonging: "Claribelle's a cry-baby!"

Every time he would come swooping down on me I would grab the seat of his pants and lift him just enough so his feet would lose traction, and thus I would hold him helpless. Such ignoble treatment and ignominious results soon taught him it was embarrassing to tease just every one. As a matter of fact, Old Teaser knew his limitations pretty well with Old Sock, his elder brother, a freshman in college. Women and children were Old Teaser's proper teasing forte; they were either too civilized or too helpless to retaliate with effective vehemence.

For a while, in order to infuriate movie-struck Judith, Old Teaser became Joe Penner and Joe's duck, Goo-Goo. Finally, growing tired of those rôles, he decided to be Chief Jumping Bull Frog. That curious aborigine was entitled to make any old sort of blood-curdling shriek and gutteral gibberish when aroused to fiendish activity; and it was ludicrous, if not entirely pleasant, to hear his contented tenor bellowing: "UrrRRH! UrrRRH! . . . Jug-o'-rum! Jug-o'-rum! . . . UrrRRH!"

Perhaps it is not quite patriotic to divulge publicly that American childhood can suffer from such things as skin diseases; but, alas, I am committed to the truth. Old Teaser became contaminated and introduced it into his school himself. Anyway, one evening Old Sock noticed Old Teaser back up against the rough corner of the brick fireplace and rub his back as they used to do in olden times when the king's fool carried a back-scratcher for his master's intimate use. You know—lice!

OLD SOCK laid his book aside with enthusiasm and sat up to observe Chief Frog's primitive self ministration. A slow disgusted sneer spread over his face.

"Hey, grunt like a hog, and the picture will be perfect!" His historically crammed 17 year old mind elucidated his memory image. "Indians never used Old English rubbing posts. They scratched each other's backs like monkeys."

There was studious silence on the part of Old Teaser, and he squirmed about in his clothing and seated himself, staring into space like one stricken with melancholy.

"Hah!" ejaculated Old Sock, as Old Teaser squirmed a little in spite of his attempts at self control. "So 'great fleas have little fleas upon their backs to bite 'em, and little fleas have lesser fleas, and so ad infinitum!' . . . UrrRRH? . . . Jugger-room?" Old Sock's imitation was very accurate.

Old Teaser was remembering his attack of hives and was feeling sorry for himself. He had not overindulged in chocolate either. At the moment, Chief Jumping Bull Frog was eating tough crow, quite chagrined. It was Master Frederick Quiller Answith who was realizing that something was askew in his regularly disordered cosmos.

"Can't take it, eh?" queried Old Sock unsympathetically. Old Teaser's lower lip trembled ever so little, and there was a faint glimmer of too much moisture in his disconsolate eyes.

"HEY, GRUNT LIKE A HOG, AND THE PICTURE WILL BE COMPLETE," SAID OLD SOCK AS HE LAID HIS BOOK ASIDE TO OBSERVE CHIEF FROG'S PRIMITIVE BACK-SCRATCHING MINISTRATIONS.

"Ah, mon pauvre petit frère!" There were crocodile tears in Old Sock's eyes as he tried out his newly acquired French.

"Shut your big mouth!" burst from Old Teaser's tortured self. He threw a magazine.

"Ah, sweet peace is about to descend on this humble little home. Big Chief Scratching Bull Frog's about to come down with sumpin!"

"Lemme 'lone!"

"Come, little bruvver, let big bruvver diagnose your case."

"I won't!"

OLD TEASER'S itch or anger must have been quite insistent. He defiantly scratched his back against the sharp corner of the bricks again and stalked out of the living room to see whether he could find his mother at a neighbor's home. He did not fancy Old Sock's refined cruelty, although it didn't differ much from his own brand.

Old Sock callously resumed his book, smirking a bit. Itching disorders of childhood usually were not of great consequence. Pretty soon, however, Mrs. Answith came home, and she directed Old Teaser to go to his room at once and disrobe.

"Big Chief Speckle Back," grunted Old Sock, "was snooty. He wouldn't let me make a diagnosis."

Mrs. Answith said nothing. She was annoyed, and she surmised that Old Sock's interest in the case had strained flimsy brotherly ties. After a few minutes she came downstairs looking a bit relieved. She was glad to know Old Teaser did not have the hives. Her nursing experience caused her to believe the trouble was some sort of ringworm disease. This she told Old Sock

who. despite once having had something of the sort himself, went immediately to Dr. Answith's den to review the subject.

A combination yardman-chauffeur-butler, such as I was, may not get everything which happens in his employer's family all at once, but he may piece things together like a jig-saw puzzle and arrive at a pretty fair picture.

First, Judith came home and sensed by the quietness that something was amiss. Quiller, was it? Huh, maybe he could now mimic a sick duck!

"Nobody talks bad about you when you are sick!" little Claribelle said, rallying to the defense. Ordinarily, Old Teaser was virulently poisonous to her happiness.

"He's lucky I haven't pulled big handfuls of his hair out," insisted Judith.

"Belay thar!" called Old Sock from the den, mixing his vernaculars. "'S bad medicine putting an Injun curse on a hop-toad chief."

THEN Dr. Answith came home. He went up to look at Old Teaser. Old Sock followed and was promptly told to hie himself away. He did not hie, and Dr. Answith was forced to speak sharply to get Old Teaser to expose his lesions to common view. The doctor was tired and indisposed toward nonsense and bickering.

"Humph!" he grunted as he looked at Old Teaser's reddened and somewhat raw back. "Better stop scratching, old timer."

"He was rubbing his back like a hog with the mange," tattled Old Sock who had once visited on a farm. "I thought he had cooties."

Old Teaser said nothing; but if looks could wither, Old Sock would have shriveled to a mummy. Suddenly his countenance beamed.

"Do I have to go to school?" he asked hopefully.

"No," said Dr. Answith, looking fixedly at him for a moment, "but you'll have to keep up with your lessons just the same."

"Aw, heck!" There was no justice in this world, according to Old Teaser's expletive.

"Why not?" asked Dr. Answith dryly, an amused twinkle in his eyes. "Tinea circinata does not disable your mind, does it?"

"All you'll have to do is smear your varmints with salve," scoffed Old Sock at his sulky brother. "It's nothing if you don't scratch it. Besides, you ought to see the cute little circles the tinea makes on your back. You've been bellowing so much like a bull frog that you're beginning to have spots on your back."

"Aw, go 'way!" said the aggrieved boy, burying his face in his pillow.

"Your little vegetable varmints have been playing 'Ring around a Rosy' in your hide!" gloated Old Sock.

"Have there been any other children in your room at school with anything like this?" Dr. Answith asked.

"I don't see their backs," mumbled Old Teaser ungraciously. "What's that vegetable thing I got?"

"Your germs are microscopic vegetable parasites," explained his father.

"Let me get a specimen of his garden and look at it," begged the scientific Old Sock. "I might find a new kind of potato or artichoke in it."

"Huh-unh!" objected Chief Jumping Frog, expecting something more unpleasant than having vegetables growing on his back.

"Well," said Dr. Answith diplomatically, "perhaps you had better just look at the textbook pictures in this case, Junior. He has already scratched himself pretty badly and has probably spread it a lot."

"When I get over this I'll scalp you," blustered Chief Jumping Bull Frog.

"UrrRRH!" croaked Old Sock contemptuously. "That's an idea!"

"Maybe it is at that," said Dr. Answith. "Here, Quiller, let's look at your scalp."

"Do I have to?" wailed Old Teaser, suspecting worse luck.

But when Dr. Answith and Old Sock were both parting his hair they found a bald spot the size of a half dollar just where Chief Jumping Frog's scalp lock had been. There were a few stubby broken hairs there, and the patch was slightly scaly.

"I want some of those hairs," almost whooped Old Sock, practically overcome with scientific curiosity.

"You'll find Tinea tonsurans in them," said his father as he held Jumping Frog's head while Old Sock pulled a couple of specimens out. "I'll bet a small sum there are more scalped Indians in his room at school."

"UrrRRH! Jugger-room!" croaked Old Sock happily as he departed for the basement laboratory to see how Tinea tonsurans uses hair for fodder.

AND Old Teaser, alias Chief Jumping Bull Frog, did not reply to the insult. Instead: "Daddy, will my head stay bald?"

"A little x-ray treatment will make your hair come back."

Thus reassured, Old Teaser had something else in his mind. Perhaps the mention of vegetable skin parasites had reminded him.

"When do we eat?" he asked. "Do I have to stay here in my room like Judith did when she had—uh—trench mouth?"

"Well, it's hardly that bad, Quiller."

"Hot dog!" He jumped out of bed to dress. "UrrRRH! . . . Jug-o'-rum!"

"But no playing with the other children," insisted Dr. Answith.

"Jug-o'-rum, jug-o'-rum!" Chief Jumping Frog was again ready to take to the war path against a practically defenseless world.

A Sting Ray Strikes

By ROBERT TOUBIB

SOMETHING struck hard. Dressed in our bathing suits, my wife and I were fishing from a little skiff anchored a hundred yards from the shore of Pensacola Bay.

I thumbed my light reel as hard as I dared, but the line buzzed out for twenty yards. Then it suddenly stopped. I tried to reel in, but there was no give to the line, no motion.

"Must have caught a snag," I thought.

Zip! No snag. Out ran the line, but this time I succeeded in reeling in a little of it before I was forced to another dead stop. My wife in her excitement edged to my end of the boat.

"Don't let him get away," she encouraged. I recalled her advice afterward.

"Better go back before you upset the boat," I answered.

I fought the thing for ten minutes with my little casting rod and reel, fought it until at last it was close to the boat, the line stretched like a bowstring straight down from the end of my bent rod.

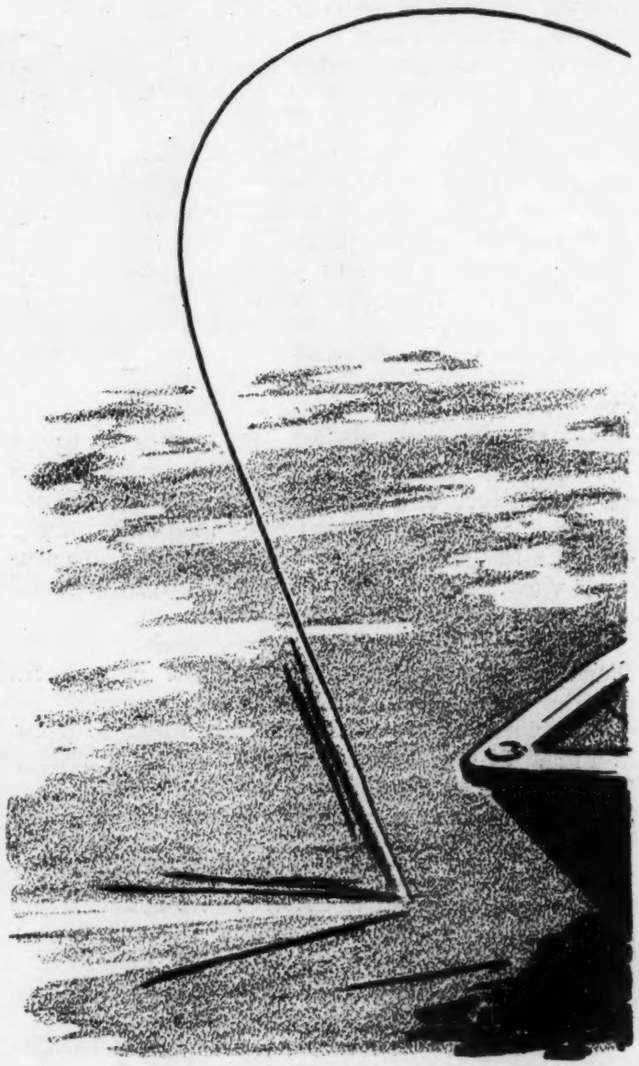
Flop! A dark green thing with a lashing whiplike tail actually seemed to jump into the boat. At the same instant a flash as of lightning struck my foot and shot up my right leg. I looked down. Blood poured from a small jagged wound on the outer side of the instep. I stepped out of reach of the thrashing tail. My wife saw the wound and cried, "Oh, you are hurt. What shall I do? Shall I stop the blood?"

"No." Then I hesitated, thinking of the possibility of poison. This did not feel like an ordinary cut. "If you will, suck it."

She turned pale but took my foot in her hands and sucked—sucked mouthful after mouthful of my blood and spit it into the sea.

The pain gradually subsided in my foot, but a sickly numbness crawled up my leg. The lymph glands of my groin began to ache intensely. But this aching, too, gradually grew less severe; and at my request my wife stopped her unpleasant task. However, the wound continued to bleed more slowly for some time. I made no effort to stop it.

During that period I had my first opportunity to look at the fish I had hooked and which, incidentally, had hooked me. It was a sting ray, or as it is more commonly known, a stingaree. The flat body was a dirty green on the back and gray-white underneath. It formed roughly a rhomb, measuring about 2 feet across from the edges of its thick fleshy fins, the length only slightly less than the width. The body terminated in an eel-like tail. The flatness of



the body evidently explained the ray's peculiar unorthodox behavior when he was hooked. Apparently he had attached his body to the bottom, exerting a sort of sucker-like action which gave the impression that the line was caught in a snag.

A FEW inches from the root of his tail there was a barbed spine, 6 inches long, oval in cross section, and ⅛ inch wide through most of its length. It ended in an exceedingly sharp point. This spine grew from the dorsal side of the tail, sloping backward, and making an angle of about 20 degrees with the horizontal. The dagger had stabbed my foot to the depth of more than an inch. The barbs along the edges accounted for the jaggedness of the wound when the thing tore itself out.

"DON'T LET HIM GET AWAY!" SHE ENCOURAGED. I HAD OCCASION AFTERWARD TO RECALL HER SWIFTLY SPOKEN ADVICE.

The eyes were the most striking thing about the fish. They were huge in proportion to his size, not round, glassy and fishlike, but oval, gray-green and sinister, almost human in appearance. Back of each eye was a hole by which water passed to the gill slits which, without any covering, opened ventrally. For the sting ray lives and feeds principally on the bottom, his mouth also opening ventrally; consequently, if he were to supply his gills with water by the mouth, as most fish do, he would take in such quantities of mud and sand as to interfere with the oxidation of his blood and probably with his digestion.

I HAD to interrupt my biologic research at the insistence of my wife. My wound must be treated. Somewhere she unearthed a bottle of tincture of iodine and made me swab out the laceration. To my surprise the actual application did not burn. I put on a dressing, and we drove home. On the way the wound seemed to wake up, and burned just as iodine is supposed to burn. I felt a sort of satisfaction in that burning, thinking that the wound, having been thoroughly cleaned, treated with antiseptic and dressed, would heal without mishap.

BUT about three hours after the sting occurred, the pain returned. And what a pain! It increased until my whole right leg seemed to be one enormous toothache. Hot wet dressings of magnesium sulfate seemed to do little good. I am unusually strong, but it hurt so much that I felt a distinct faintness. My wife called up a confrère for suggestions as to treatment. He

had nothing to add to my treatment, but he ended the telephone consultation with the following encouragement: "Oh yes, I have a patient who was stung by one of those things eleven years ago. Still limps. The muscles of his leg are all drawn up."

My foot and leg swelled as high as the knee, and the edema persisted for a week or more; but fortunately the intense pain lasted less than three hours.

The wound would not heal. It would close for a day or two, break down, and drain purulent serum for a week. I began to think about the patient with "the muscles of his leg all drawn up," and considered doing something radical. However, a dressing with an elastic bandage at last gave relief. After two and one-half months the wound finally closed. There still remains as a souvenir, an ugly bluish scar with a dark discoloration around it.

It is not surprising that during those two and a half months I took an active interest in sting rays. I looked them up in all the available literature and learned that they are numerous in the shallow waters of the Gulf Coast and that the specimen that stung me was relatively small. I discovered also that stings are rather common in these waters, especially among those who wade at night to spear flounders. The popular method of local treatment, which is highly recommended by the natives, consists in soaking the wound in a dilute solution of household ammonia. "Draws the pain right out," they say.

THESE sting rays belong to the Elasmobranchii, which comprise sharks, dogfish and rays. The Elasmobranchii form the most primitive division of fish, those with skeletons composed essentially of cartilage. One book on fish states that the rays are mammals; this is an error probably having its origin in the fact that a considerable number of the Elasmobranchii are viviparous; that is, they do not hatch their young from eggs but bring them forth alive. The sting ray belongs to the order of the Selachii and is of the amiable family of Rajidae.

The Rajidae include the deadly manta, or devilfish, which is supposed to have been the sea monster of the ancients. It now grows to a width of 20 feet, living on clams and shellfish, which it crushes in its viselike jaws. The electric ray, another member, is "capable of temporarily paralyzing the arm of a man." The sawfish ray also belongs to this family.

The sting ray (Trygonida) has forty varieties, some of which are found all over the world. This fact probably accounts for the various data obtained from different sources. A French authority, for example, does not even mention the sting of the ray and, after mentioning that there are sixteen varieties on the coasts of France, states, "The ray is an edible fish," thus evoking the gustatory image of *raie au beurre noir*. A well known British reference work tells *me* that "the ray will wound but not poison."

Admiral Stitt in his "Tropical Diseases" simply notes "a barbed spine which in some species is connected with a poison apparatus," but he emphasizes the possibility of the introduction of the tetanus organism in the puncture wound.

However, Castellani and Chalmers write: "Dr. Crevaux has studied rays from the Orinoco and has shown that their barbs are canalized and the canals connected with poison reservoirs. This poison is said to be so severe as to be able to kill a man in forty-eight hours. The symptoms of *Aëtobatis narinari,* called the Bishop ray, and of *Trygon pastinaca* (from Japan) are violent pain, a tendency to syncope, with locally a rapid formation of swelling, which soon becomes the seat of a violent inflammation and even gangrene."

Considering the severe symptoms I had after a large part of the poison undoubtedly had been sucked out, my assailant must have had relatives in the Orinoco or in Japan.

THE rays, it must be remembered, are not the only poisonous fish. Among the other best known ones are Trachinus draco and Scorpaena scorpaena. Each is equipped with a poison apparatus connected with the barbs of the dorsal fin. In addition, Trachinus draco has a grooved poison spine passing out through the gill covering. The catfish must also be mentioned, for a wound from his barbs, however small, is no joke.

Reference has already been made to local treatment of the sting of poisonous fish. However, if it is suspected that the poison might be dangerous, it would be well to resort to the tourniquet and the other technic as in the treatment of snake bite. When the spine of the fish is broken off in the wound, it is often necessary to make an additional incision and force the spine out by the new opening, using the same method as in removing fish-hooks. As to the systematic treatment of these reactions, one should proceed along symptomatic lines.

The danger of a sting from the ray while bathing in daytime is almost nil. Whenever approached by any one, even stealthily, he makes out to sea, swimming by an undulating motion of his broad fins at a speed which seems a miracle for his flat, awkward-looking body. I have not yet speared one. Wading at night seems to harbor the greatest danger, and undoubtedly it would be well to add sting rays to the other disadvantages of night swimming, such as sharks, crabs, mosquitoes and malaria.

Evidently too, when fishing in shallow salt or brackish waters, it is best to see the fish before he gets into the boat; and if he is a sting ray, don't obey your wife even if she does say, "Don't let him get away."

Century-Allen Photos

TUMBLING NOW HAS A PLACE ON THE REPERTOIRE OF THE EXPERT PHYSICAL EDUCATION TEACHER.

GYM for JOHNNY and JANE

An Article on the Changing Conception of "Gym" Class

By ROSS L. ALLEN

"BOY, did we have fun! My team won!" Johnny Ferris, with pardonable pride, strutted exuberantly.

"What are you talking about, Johnny? Didn't you go to school today?" asked Mrs. Ferris, glancing at Johnny sternly. "It's only 3:10, and it takes you ten minutes to come from school."

"No, Mom, honest, I wouldn't play hookey. We have more fun in school. We had a ball game in gym class today, and I was the captain. My team won!"

"Oh, I'm glad that you had such a good time; you must have had good players on your team. By the way, where's Jane? She usually comes home with you."

"She's staying after school to learn how to tap-dance or something. She said her gym teacher just started a class after school, and all the girls want to learn."

"Johnny, we never had things like that in school when I was a youngster."

This conversation might be heard in hundreds of homes on any school day of the year. The physical education programs in the schools are really attracting the interest and enthusiasm of American boys and girls. Most parents share in this hearty support of the activity programs. I use the word "most" advisedly because there are many fathers and mothers who still believe that schools should be concerned entirely with the three R's; there are others who have not acquainted themselves with the "modern" program of health and physical education which is now being adopted and endorsed by practically all public school administrators; there are still others, the younger parents who recall that nothing was done in gym classes because "Coach So-and-So spent all his time with the school team!" There is little wonder that parents do have these various attitudes toward "gym" work. The dull routine of the old formal calisthenics and apparatus work is readily recalled from their experiences. Then too it wasn't so long ago that it was unlady-like to participate in any "big muscle" activities. Finally, the public has not been informed of the more recent developments in physical education.

THE modern teacher of physical education is not primarily interested in giving your son or daughter a "work-out." Neither is he anxious to line up your offspring for an hour of drill and

discipline. If there are such meaningless programs in your child's school it is time that you visit the principal or superintendent and ask him to keep his "gym" teachers abreast of the times.

PHYSICAL education today is certainly interested in providing a program of activities which will exercise the muscles of the body and contribute toward a symmetrical development. The choice of activities is also an important matter. Games, stunts, sports, dancing, rhythms, some apparatus work and tumbling constitute the physical educator's repertoire today. There is constantly in his mind the necessity of selecting from these large groups of activities those which are most suitable to the interest and individual needs of your child. Mass drill is practically out. Occasionally one sees it in exhibitions and demonstrations, but as a regular feature of the "day's order" it is taboo. The fundamental principle that every child is a unique individual, a separate entity, has guided the activities program in schools today. Golf, stunts, swimming, tennis, badminton, squash, handball and volleyball are increasingly entering the school's gymnasium program. Actually, we must realize too that the "gym" class is also a misnomer, for the program takes place outdoors whenever possible. The child's mental, physical and social development as well as his wishes and desires are respected.

That wild arm-flinging spectacle which one could witness in the gymnasium a few years ago has been supplanted by small groups of youngsters engaged in purposeful activities which contribute to joyful, useful living, not necessarily useful when they are twenty years older but of great importance to their childhood days of adjusting themselves socially and healthfully. If you look closer you may see student leaders actually teaching your child in one of these groups. The teacher of physical education has such large classes that in order to provide a diversity of enjoyable and worthwhile games or sports he must train student leaders, usually after school in "leaders' corps" or "junior instructors' class," to instruct small groups of his own "gang." The gym teacher does not stand around but goes from group to group helping wherever he can. Actually this type of squad or group teaching requires much more preparation, initiative and skill on the part of the teacher than that of standing in front of 100 or so manikins in a class and leading them in artificial gyrations.

ONE must not be too critical, however. The calisthenic exercises do have beneficial physiologic reactions on the body *if the participants indulge wholeheartedly.* Recall the many individuals who have benefited by morning exercises with radio accompaniment; a mental as well as a physical feeling of well being is often the outcome. The calisthenics of military training and of rounding into shape for the football team can produce the desired results. But it is quite a different matter to force uninterested children

ACTUALLY THE NAME "GYM" CLASS IS A MISNOMER, FOR THE PROGRAM TAKES PLACE OUTDOORS WHENEVER POSSIBLE.

into a lackadaisical, stereotyped drill, day after day. There is equally as good exercise, probably better, in activities which children enjoy.

The teacher of physical education is no longer "just a coach." His professional training usually requires four years in college. His studies, in addition to the coaching of athletics, include the fundamental sciences, such as anatomy, physiology and kinesiology, on which an acceptable program of physical activities is based. The human sciences, including educational methods, philosophy, sociology and psychology, are essential to his well rounded preparation. No longer will "winning" teams be the criterion for hiring a physical education teacher. This is as it should be, for after all it is much more important to meet the needs of all the children than to spend one's time exclusively on a few athletes, who probably need instruction the least. The successful teacher often uses these physically gifted students to help their less fortunate compatriots. The educational administrator, who may be the principal, supervisor or superintendent, evaluates his physical education program by using as a basis for his judgment the number of children reached and their responses to and in the activities. The "gym" teacher no longer has to win games to hold his job.

ONE of the most satisfying developments in physical education is the interest and increasing participation of girls in physical activities. The pale, anemic, fainting female of yesteryear has been replaced by the vigorous, active, wholesome girl of today. The better choice of activities in physical education has contributed greatly toward this change. Activities which are more fitting to the girl's physical, physiologic and social needs constitute a welcome substitute for mass marching, calisthenics and the like. The girls of today do not try every possible means to "get out" of taking gym, for they realize the enjoyment of participation and achievement in physical exercise adapted to their own requirements.

The modern physical educator doesn't hope to produce a manly woman; nor does she look forward to the day when her pupils will break records in one thing or another. Rather, she is striving for a well poised, active and salubrious individual who is charming to behold and who can handle herself gracefully and efficiently and enjoy the participation in sports in which she can engage without social stigma and without physical harm. Girls' achievements along this line are indeed laudable.

THE symmetrical development of the body through well chosen "large muscle" activities selected to meet the needs and interests of the student, then, is the fundamental objective for which the teacher of physical education in your youngster's school is striving. But there are other objectives as well which an all round program of physical activities hopes to attain.

Health, mental, moral, social and physical, is a concomitant aim to which the modern program is pointed. It is by no means the major justification for physical education. However, along with the school physician, the dentist, the psychologist, the nurse and all the teachers in the school, the physical education instructors make their contribution to the health of the child. They are constantly on the watch for signs of abnormal health and immediately call the attention of the parents, nurses and doctors to the advisability of a thorough examination to find the cause of the appearance of these abnormal signs. They do not attempt to find the cause themselves or to diagnose the condition. There are other persons better qualified to do this.

THEN, too, they teach the children the importance of proper personal hygiene. Training in the past has not been too good for this particular phase of the work. Nevertheless, the training schools for all teachers are now meeting the need for better teaching of hygiene.

Character building has in the past come in for considerable attention as an objective of physical education. The building of character is a cooperative endeavor of all teachers in the school. It is true, however, that those in physical education do have the opportunity to see Johnny and Jane *as they really are* in game situations: how they fit into the group, how they react to trying situations and how they take a loss or a victory. Here is an opportunity to teach socially acceptable reactions which is too often neglected.

Finally, Johnny and Jane should know more about the rules and strategy of our national games, baseball, basketball, football, hockey and the others, in order that they may be not only intelligent participants but tolerant and wise spectators. So many of the unfortunate displays of poor sportsmanship on the part of spectators can be attributed to lack of knowledge of the rules of the game. Umpires are booed, players are "razzed" when the spectators do not know what it is all about. Johnny's and Jane's teacher of physical education should impart the necessary knowledge for an understanding of many sports, so that they can enjoy watching them even when for physical reasons or for lack of skill they cannot engage in them.

Gym for Johnny and Jane, then, should be an enjoyable and active session of participation and learning in a wise and wide selection of games, sports, dancing and other activities. Such participation and learning should contribute to a harmonious muscular development, to health, to character, to good sportsmanship and to a tolerant and intelligent understanding of many sports.

—Phosphorus—

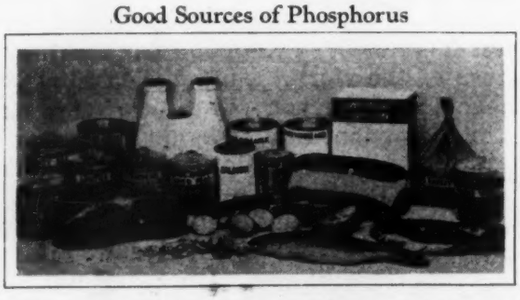
Needed in All Parts of the Body

Rats from the same litter, 9 weeks old

This rat did not have enough phosphorus. It grew slowly and weighed only 60 grams

This one had plenty of phosphorus, and weighed 115 grams

Good Sources of Phosphorus

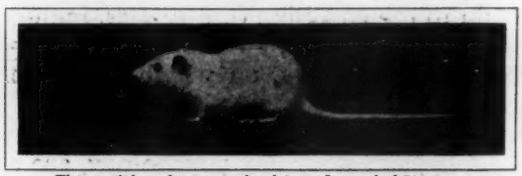


FOODS RICH IN PHOSPHORUS ARE MILK, EGGS, LEAN MEAT, FISH, OYSTERS, SHRIMP, WHOLE BARLEY, WHOLE WHEAT, ESPECIALLY BRAN AND GERM, COTTONSEED FLOUR, RICE POLISHINGS, BEANS, COWPEAS, LENTILS, PEAS AND SOYBEANS.

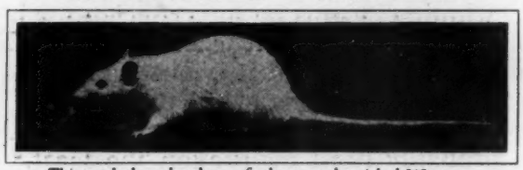
——Calcium——

For Building Strong Bones and Teeth

Rats from the same litter, 22 weeks old



This rat did not have enough calcium. It weighed 91 grams. Note the short, stubby body, due to poorly formed bones



This one had an abundance of calcium, and weighed 219 grams. Its bones were well formed

Good Sources of Calcium

SOURCES OF CALCIUM INCLUDE MILK, CHEESE, CLAMS, EGGS, ALMONDS, SYRUPS, SUCH AS SORGO, MAPLE AND MOLASSES, AND VEGETABLES, ESPECIALLY BROCCOLI, CAULIFLOWER, TURNIPS, BEANS, KALE AND BEETS, TURNIP AND MUSTARD GREENS.

Watch Your Diet— An Article for Those

By E. M. GERAGHTY

ALMOST every day we hear some one say, "The doctor says there isn't anything wrong with me except that I'm not eating the right things. He told me to watch my diet."

"Watch your diet" is a good admonition for every one, especially the too-thins and the too-fats, but as far as this article is concerned it is going to be directed to the "near-rights." In other words, this article is to deal with the "normal" diet, the everyday diet of adults who need just enough food to meet the demands of daily activities, influenced and controlled by body type and functioning and not in any way restricted as to makeup of component parts of diet.

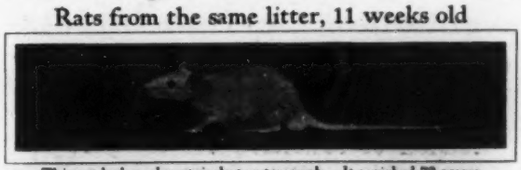
Each individual has a definitely defined need as to total value of food; this need is based on body activity at comparative rest plus the amount used for the usual daily program. The normal weight and the type of build of the individual are both potent factors in setting up definite standards. So, if your doctor tells you to "watch your diet" ask him how much you should weigh and how many calories you need each day.

Suppose your doctor tells you that you should weigh 132 pounds and that you need 2,400 calories a day. The first thing for you to determine is the number of grams of protein you need daily.

Authorities are agreed that you should obtain from 10 to 15 per cent of your total calories from proteins. Another standard is to have from 1 to 1.5 grams of protein for each 2⅕ pounds of proper weight. From 10 to 15 per cent of the suggested 2,400 calories will be from 240 to 360 calories. Since each gram of protein furnishes 4 calories, from 60 to 90 grams

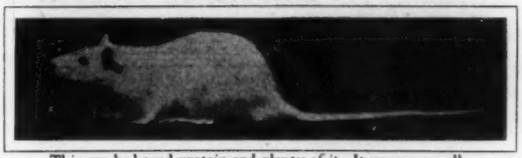
Protein
For Building Muscles and All Tissues

Rats from the same litter, 11 weeks old



This rat had good protein but not enough. It weighed 70 grams

This one had enough protein but of a poor kind
It weighed only 65 grams



This one had good protein and plenty of it. It grew normally and weighed 193 grams

Good Protein Foods

Charts, U. S. Bureau of Home Economics

FOODS CONTAINING PROTEIN INCLUDE MILK IN ALL FORMS, CHEESE, EGGS, ALL KINDS OF LEAN MEAT AND POULTRY, FISH AND SHELLFISH.

Whose Weight Is Normal

of protein will supply from 240 to 360 calories. One hundred thirty-two pounds is sixty times 2⅕ pounds. So, using the standard of from 1 to 1.5 grams of protein for each 2⅕ pounds, we find a requirement of from 60 to 90 grams of protein for an individual weighing 132 pounds and requiring 2,400 calories per day.

PROTEIN is the only source you will have for repair of waste and building of new tissues. This point must be maintained if your diet is to be adequate. The main sources of protein are meat, eggs, fish, cheese and milk. Some protein comes from cereals, fruits, vegetables and gelatin; but this is not the same quality of protein as is found in meat, eggs, fish, cheese and milk.

Here is a table of average servings of the best sources of protein, giving the number of grams in each serving. Keep this in mind in planning your day's menus. And study carefully these excellent charts provided by the U. S. Bureau of Home Economics.

FOOD AND AMOUNT	GRAMS PROTEIN
Bacon (three strips, 5 inches long)	7
Beef, corned (average serving)	9
Beef, dried (three slices, 7 by 3 inches)	9
Beef kidney (average serving)	5
Beef, roast, cold (average serving)	7
Beef, roast, hot (average serving)	14
Broiler (one-half)	21
Bologna (two slices)	6
Chop, lamb, single (one)	12
Chop, lamb, double (one)	24
Chop, pork, lean (one)	24
Chop, veal (one)	24
Fowl (average serving)	13
Frankfurter (one [9 to the pound])	10
Ham, roast, cold (one slice)	7
Ham, roast, hot (one thick slice)	22
Lamb, roast (average serving)	11
Liver, beef (one slice)	16
Liver, calf (one slice)	10
Liver, lamb (one slice)	12
Liver, chicken (average liver one chicken)	11
Pork loin, roast (average serving)	13
Pork sausage (two sausages [16 to the pound])	8
Pork tenderloin (4 by 3½ by ¼ inch)	19
Steak, round (⅛ pound [¼ cupful ground])	13
Steak, tenderloin (average)	19
Steak, sirloin (average)	31
Sweetbreads (one-half average pair)	19
Veal, roast (average serving)	12
Fresh cod steak (average serving)	15
Haddock, fillet (average serving)	15
Shad (average serving)	23
Halibut steak (average serving)	18
Salmon, canned (¼ cupful)	14
Sardines (four small or two large)	7
Shadroe (half pair)	21
Tuna fish (¼ cupful)	16
Clams, round (six)	9
Crab meat (¼ cupful)	7
Lobster meat (¼ cupful)	8
Oysters, solids (seven medium)	6
Shrimp (twelve)	15
Longhorn cheese (one slice)	8
Brie (one piece, 1½ by 1½ by ½ inch)	3
Cottage, dry (2 tablespoonfuls)	6
Philadelphia cream (2 tablespoonfuls)	4
Limburger (one piece, 1 by 1 by 1 inch)	5
Swiss cheese (one slice)	11
Pimento, Anona (2 tablespoonfuls)	7
Pimento, brick (one slice)	4
Pineapple cheese (one slice)	6
Whole egg (one)	6
Egg white (one)	3
Egg yolk (one)	3
Whole milk (¾ cupful [6 ounces])	6
Skimmed milk (¾ cupful [6 ounces])	6
Buttermilk (¾ cupful [6 ounces])	5
Evaporated milk (¾ cupful [6 ounces])	12

A pint of milk or the equivalent should be taken each day by every adult. By "equivalent" is meant a half pint of evaporated milk or the amount of cheese of any kind which would come from that much milk. The milk does not need to be taken as a beverage; it may be in soups or desserts or used in any other way desired. This amount of milk plus the calcium

you will get from your other foods will insure you against calcium deficiency.

The protein you included, with the milk and some whole grain cereals and whole grain breads will give an adequate amount of phosphorus.

The protein foods, the whole grain cereals and whole grain breads, greens, both cooked and in salads, and the dried fruits and nuts are easy-on-the-palate ways of taking iron.

VITAMIN A is necessary for growth and the continuance of optimum health. An inadequate supply causes lowered resistance to infection and a tendency to impairment of tissues, especially in the eyes, ears, lungs, sinuses and glands. The increased hazard of susceptibility to infection due to hurried living, insufficient rest and general high tension of emotional dissipation in the normal adult life necessitates careful watching to assure plenty of this protective substance. The milk, butter, cream, eggs, fruits and vegetables necessary for your diet will provide a sufficient amount of vitamin A.

Vitamin B is necessary for the continuance of maximum health, good appetite and normal digestion. This is one of the vitamins which probably appears in a minimum amount in otherwise adequate diets. Be sure to take care to include plenty of whole grain cereals and whole grain breads in your daily menus.

Vitamin C is known as the antiscorbutic vitamin because of its prevention of scurvy. Some authorities feel that it may be a factor in the prevention or alleviation of arthritis. Like A and B, vitamin C is credited with aiding in the promotion of growth and the prevention of infection. In addition to these qualities it makes a definite contribution to better tooth health. So get plenty of grapefruit, oranges, tomatoes and cabbage.

Vitamin D is a fat-soluble substance known as the antirachitic vitamin, so called because a sufficient amount of it prevents rickets. It is essential for growth and the control of bone development. While rickets is the most widely known condition that may be prevented by vitamin D, yet faulty tooth structure may also be concerned with the diet offering of this unit. Within the past few years it has been conceded that certain foods may be treated so as to give results comparable to a certain amount of exposure to sunlight or intake of cod liver oil. This treatment of ultraviolet light on foods containing ergosterol produces by irradiation an

—Iron—

For Red Blood

Foods Rich in Iron

Animal Foods

Meats—Liver, kidney, brain, and heart, also lean muscle of beef, veal, pork, and lamb

Eggs—Especially the yolks

Oysters. Shrimps

Plant Foods

Green Leaves—Turnip, beet, chard, dandelion, and mustard greens, water cress, spinach, kale, New Zealand spinach, and broccoli leaves

Dried Fruits—Particularly apricots, peaches, currants, and dates; also figs, prunes, and raisins

Legumes—Lima and kidney beans, lentils, cowpeas, and common peas—either dried or fresh

Whole-Grain Cereals or Flours—Wheat, barley, rye, and oats

Sirups—Sorgo, cane, and molasses

Nuts—Almonds, hazelnuts, walnuts, pecans, and hickory nuts

—Vitamin A—

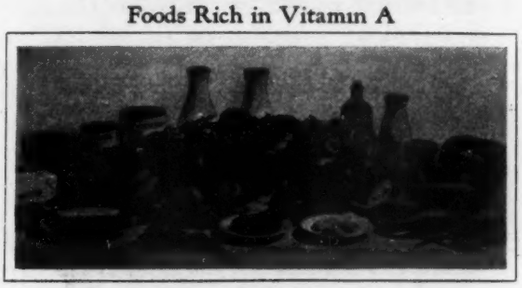
For Growth, and the Prevention of Certain Infections

Rats from the same litter, 11 weeks old

This rat had no vitamin A. It weighed only 56 grams. Note the infected eye, rough fur, and lack of vigor

This one had plenty of vitamin A and weighed 123 grams. It has bright eyes and sleek fur and is vigorous

Foods Rich in Vitamin A



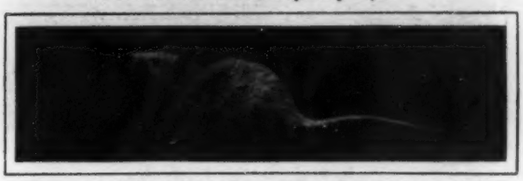
FOODS WHICH CONTAIN QUANTITIES OF VITAMIN A INCLUDE THESE: BUTTER AND CREAM, WHOLE MILK, CHEESE MADE FROM WHOLE MILK, EGGS, LIVERS, RED SALMON, GREEN AND YELLOW VEGETABLES, YELLOW FRUITS, TOMATOES, OLIVES AND VARIOUS KINDS OF FISH LIVER OILS.

—Vitamin B—

For Good Appetite and Good Muscle Tone

Female rat, 24 weeks old

This rat did not have enough vitamin B. The lack of muscle control is called spastic paralysis



The same rat 24 hours later, after receiving a food rich in vitamin B. Already it has recovered muscle control

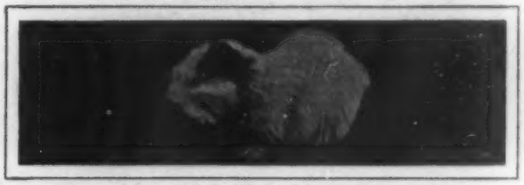
Good Sources of Vitamin B

VITAMIN B MAY BE FOUND IN MILK IN ALL FORMS, FRUITS, VEGETABLES, WHOLE GRAINS, NUTS, BEANS, PEAS AND OTHER LEGUMES, LIVER, EGG YOLK, LEAN PORK AND OYSTERS.

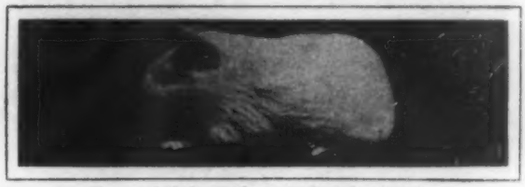
—Vitamin C—

For Healthy Gums and Teeth

Guinea pigs of the same age



This one had no vitamin C and developed scurvy. Note the rough fur and crouched position due to sore joints



This one had plenty of vitamin C. It has sleek fur and is healthy and alert

Good Sources of Vitamin C

VITAMIN C IS KNOWN AS THE ANTI-SCORBUTIC VITAMIN. IT IS FOUND ESPECIALLY IN FRESH CITRUS FRUITS, CABBAGE, TOMATOES, SPROUTED LEGUMES AND OTHER FRESH VEGETABLES.

antirachitic factor. Thus we have irradiated milk with added vitamin D.

Children cannot get enough vitamin D in the diet by food selection alone, so, unless the body can be exposed daily to the direct unfiltered rays of the sun for a long enough period to build up a supply of this vitamin, it is well to include cod liver oil in the daily regimen. Cod liver oil will furnish vitamin A as well as D.

Vitamin G is necessary for the best regulation of digestive function and the prevention of skin lesions, especially of the pellagra type. For this vitamin include especially the whole grain cereals and whole grain breads and the leafy vegetables, such as spinach, cabbage, lettuce, romaine, broccoli, Swiss chard and kale.

THERE should be sufficient bulk to induce normal bowel action. For this include the whole grain cereals and the coarser fruits and vegetables, such as oranges, grapefruit, prunes, dates, asparagus, broccoli, Brussels sprouts, cabbage, celery, chicory, dandelion greens, kale, lettuce, spinach and string beans.

From 6 to 8 glasses of water should be taken daily.

The calories should be determined, as mentioned before, by the individual need of each person; but, generally speaking, the range will be from 2,000 to 3,000 calories daily for the normal adult.

THE day's food allowance should be balanced in such a way that, after the previously discussed 10 to 15 per cent of the calories from protein are provided for, the accepted amount of carbohydrate and fat will be included.

Plan for about 50 per cent of the total calories from carbohydrates: fruits, cereals, milk, vegetables, breads, crackers and sugar. Each gram of carbohydrate yields 4 calories.

Now the remainder, or from 35 to 40 per cent of the total calories, should be from fat: butter, cream, oil, fat of meat and cheese. Each gram of fat yields 9 calories.

In the suggested day's allowance of 2,400 calories you will need from 60 to 90 grams of protein, from 93 to 106 grams of fat and about 300 grams of carbohydrate.

Note in these menus the departures from your own daily plans. Watch the amount of cream used. Most menus offer entirely too much fat;

—Vitamin D—

For Good Bones and Teeth

Rats from the same litter, 20 weeks old

This rat had no vitamin D Note the short body and bowlegs—typical signs of rickets

This one had plenty of vitamin D Its bones are strong and straight

Foods that Supply Vitamin D

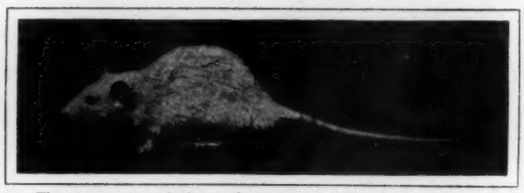
VITAMIN D IS FOUND IN THE FOLLOWING: FISH LIVER OILS, CERTAIN OTHER FISH OILS, SUCH OILY FISH AS HERRING, SARDINES AND SALMON, AND SMALL AMOUNTS IN ALL MILK, CREAM, BUTTER AND EGGS.

—Vitamin G—

For General Well-Being

Male rat, 28 weeks old

This rat had no vitamin G and weighed only 63 grams. Note loss of hair and emaciated condition



The same rat 6 weeks later, after receiving food rich in vitamin G Its weight was then 169 grams

Good Sources of Vitamin G

FOODS WHICH CONTAIN QUANTITIES OF VITAMIN G ARE MILK IN ALL FORMS, CHEESE, EGGS, LEAN-MUSCLE MEATS, LIVER AND OTHER EDIBLE ORGANS, BANANAS, GREEN LEAVES, GERM OF CEREALS.

these provide only a small amount of extra butter and other fats. One teaspoonful of butter has been calculated for each serving of hot vegetables. Note how little fatty salad dressing is used. The following menus for seven days have a caloric range from 2,068 to 3,269 and a protein level from 76 to 115:

MENU 1

Breakfast

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Baked apple (one)	1	1	36
Whole wheat cereal (½ cupful)	3		15
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Bacon (two strips)	5	10	
French toast (one slice)	5	7	11
Maple syrup (2 tablespoonfuls)			20
Milk, skimmed (¾ cupful [6 ounces])	6	1	9
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10

Lunch

Vegetable soup (average serving)	6	3	18
Crackers (two)			8
Chicken salad (average serving)	13	34	2
Lettuce (five leaves)	1		1
Buttered cauliflower (average serving)	2	4	4
Milk, skimmed (¾ cupful [6 ounces])	6	1	9
Jelly roll (average slice)	3	1	26
Tea with lemon			
Sugar (2 teaspoonfuls)			10

Dinner

Fresh fruit cocktail (average serving)	1		10
Meat loaf (average slice)	13	5	
Italian spaghetti (average serving)	7	12	30
Asparagus tips (six)	3	4	11
Broiled Spanish onion (one-half)			
Hard roll (one)	1	2	11
Romaine salad (average serving)	1		1
French dressing (½ tablespoonful)		5	
Apricot whip (average serving)	2		26
Coffee			
	81	95.5	302
	×4	×9	×4
	324	859.5	1,208

324 plus 860 plus 1,208 equals 2,392 calories.

MENU 2

Breakfast

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Grapefruit (one-half)	1		9
Whole wheat cereal (½ cupful cooked)	3		15
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Grilled ham (one thin slice)	7	8	
Coffee cake (one square)	6	4	14
Butter (one-half pat)		4.5	
Milk (¾ cupful [6 ounces])	6	7	9
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10

(Continued on page 78)

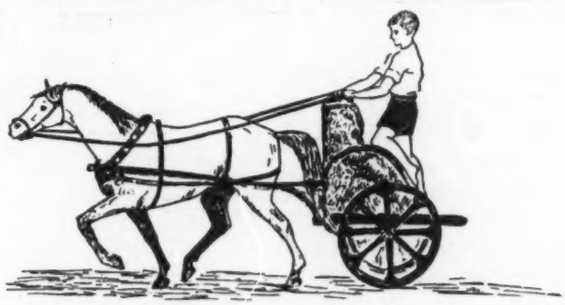
Diabetes, Doctors and Dogs

Part I—Knowledge Is Power

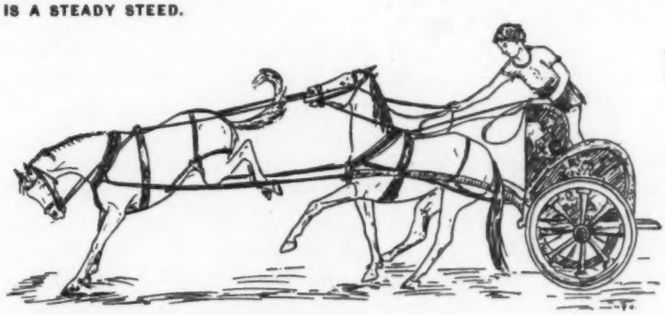
By ELLIOTT P. JOSLIN

DOCTORS have diabetes too; and as I have treated a good many, it occurred to me that if I could find out how my doctors behaved who have diabetes I might learn something which would be helpful to my other patients. Doctors, as a class, are good subjects for study because one can generally trace them as long as they live and thus obtain end results even if they do wander about the United States or go to South America, Europe, Asia or Africa. Therefore with the help of Dr. Louis I. Dublin and Mr. Herbert H. Marks of the Metropolitan Life Insurance Company I have followed up my 300 diabetic doctors, and this is what I have discovered.

First of all, let us consider diabetic coma, that sly enemy of the diabetic which stole so many diabetic lives until insulin barred his approach. Diabetic coma is always lurking around the diabetic patient's path, ready to pounce on him if he breaks his diet, suddenly changes it or becomes the victim of either a general infection, such as a bad cold, grip or sore throat, or a local one like a boil, a carbuncle, appendicitis or gallstones.



DIET PULLING ALONE IS A STEADY STEED.



THE PERFORMANCE OF DIET AND EXERCISE IS NOT CONSISTENT.

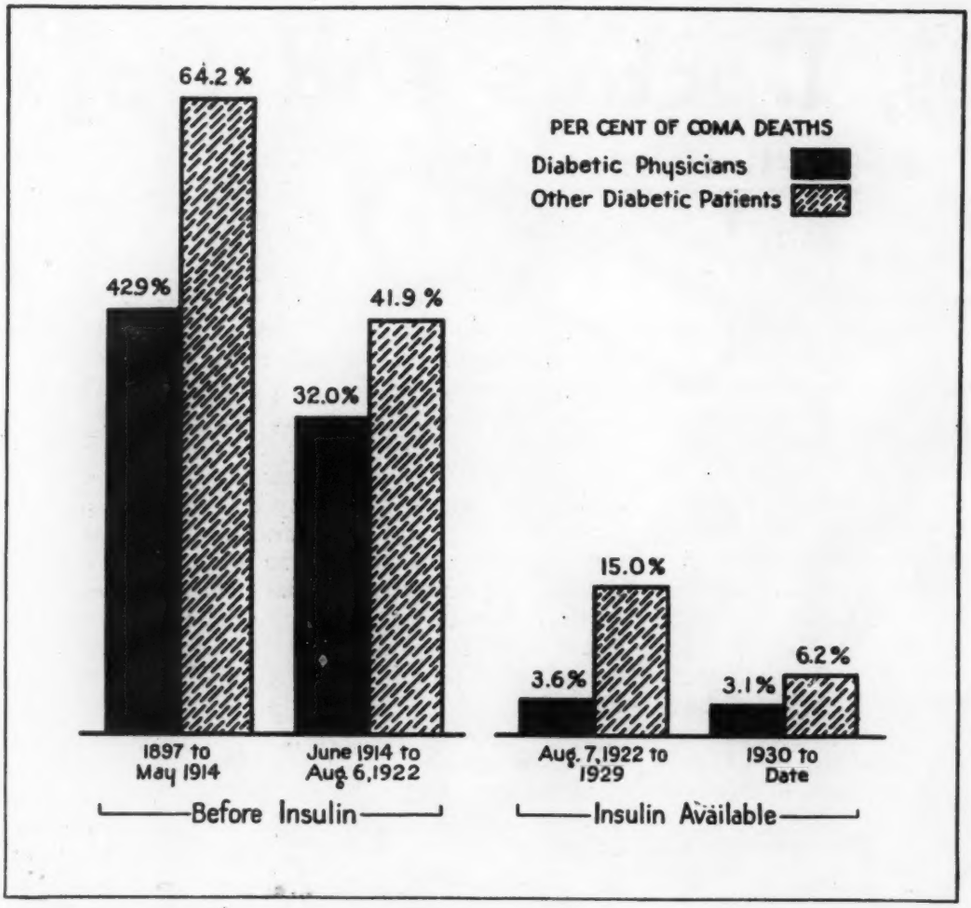
Reproduced from Joslin's "Diabetic Manual" by courtesy of Lea & Febiger.

DIET AND EXERCISE WORK TOGETHER HAPPILY WHEN HARNESSED WITH INSULIN.

Practically 100 per cent of diabetic children who died before the use of insulin in 1922 died of coma; between 1898 and 1914 nearly 66 per cent of all the deaths among my diabetic patients were due to this cause. Contrast this to the mortality from diabetic coma in 3,519 deaths from diabetes among the policy holders of the Metropolitan Life Insurance Company in 1935, which was 18.1 per cent. Note what has happened. Today, doctors literally refuse to die of diabetic coma; in fact only two doctors, 3.3 per cent, in the group have succumbed to it since the discovery of insulin in 1922 and of these deaths, one occurred before 1925. How can one explain this immunity to diabetic coma among doctors? If doctors will not die of diabetic coma, why should their patients continue to do so?

ALL those who were afflicted with diabetes profited greatly by the discovery of insulin, but diabetic doctors benefited most of all. The use of insulin lowered the general diabetic death rate of my young adult patients by 80 per cent, but the death rate for my young diabetic doctors dropped more than 90 per cent. Why did this occur? Are doctors so different from other people?

During the insulin period of treatment of diabetes the death rate of my diabetic doctors between the ages of 25 and 39 years has been less than one-fourth that of my other diabetic patients. It is two-fifths that of the others between 40 and 59 years, but it is only one-nineteenth better at 60 years or over. Somehow,



COMPARATIVE COMA MORTALITY AMONG PHYSICIANS AND OTHER DIABETIC PERSONS.

Charts reproduced by courtesy of Statistical Bureau, Metropolitan Life Insurance Company.

doctors manage to live much longer with diabetes than do others who are not doctors.

What answer can be found to all these questions? Why are doctors with diabetes less apt to die of coma than other diabetic patients? Why have they benefited more from the use of insulin? Why is their death rate so much less than that of other diabetic patients?

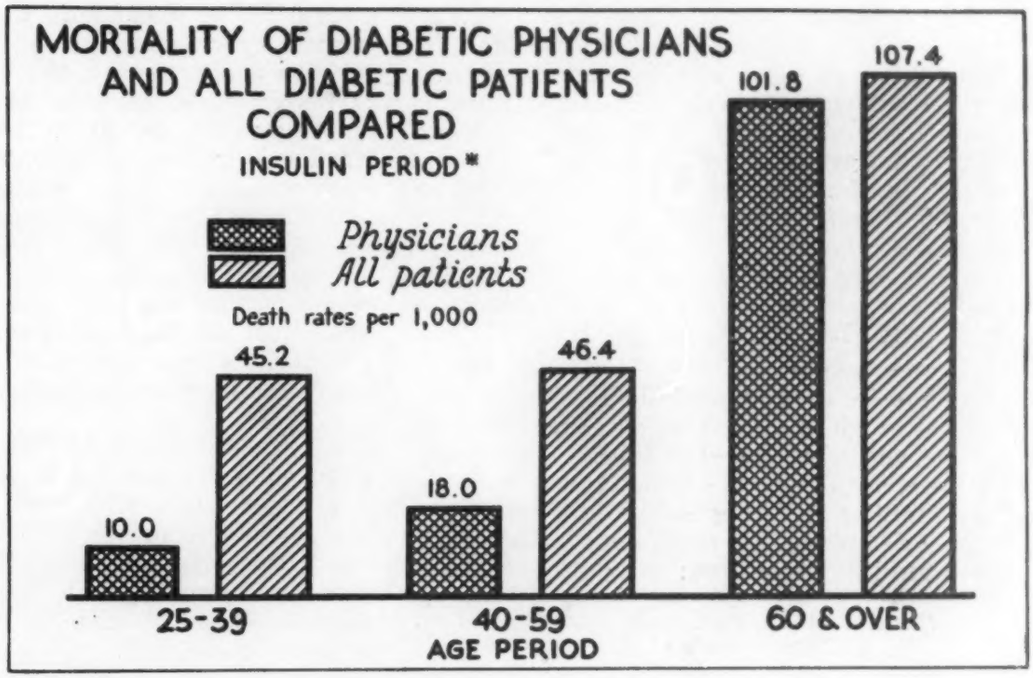
THE answer is that doctors know more about diabetes than do their patients and so can avoid its dangers. It is the knowledge of diabetes and its complications which helps them. It is so plain to them that the intelligent and conscientious treatment of diabetes pays that they are careful to adhere strictly to the rules of diabetic treatment. Not every diabetic person can be a doctor or perhaps know as much about diabetes as a doctor, but if he wishes to do as well as a doctor, he must study diabetes.

Great improvement in the treatment of diabetes has occurred even in my lifetime. This can be registered most definitely by recording the increase in the length of life of the patients following the onset of the disease. The most dramatic results of the treatment are shown in children. When I began practice the outlook for the life of a diabetic child was so short that I kept a record of the duration of their lives in days. Even as late as 1922 it had scarcely risen to two years, and for the country at large it was probably a fair statement that 1,000 children each year became diabetic, and of these, all but a handful succumbed to the disease before the end of twelve months.

TODAY, doctors cannot predict with accuracy how long a diabetic child will live, because so few die. Therefore I welcomed the data prepared by the Metropolitan Life Insurance Company from a study of my diabetic children, living and dead, which indicates the present life expectancy of a diabetic child 10 years old. It has risen to 31.7 years. In other words, the average diabetic child 10 years old is now expected to pass his forty-first birthday. This is irrespective of the previous duration of his diabetes and makes no allowance for improvement in diabetic treatment during the thirty years before he reaches 40. That improvement will fail to take place is almost unthinkable. The average 10 year old child should live to his sixty-seventh year. For children at birth the present average life expectancy of boys is 61 years and of girls 63 years.

Treatment of diabetes depends on diet, exercise and insulin. Of these three a knowledge of the diet is most essential.

To adhere to a special diet was the only satisfactory method of treatment for diabetes until the use of insulin was introduced. This diet was compounded from all sorts of queer ideas,



THIS COMPARATIVE CHART SHOWS A WIDE DIFFERENCE AT YOUNGER AGES.

*The Insulin period for all patients was Aug. 7, 1922-1929; and for physicians, it was Aug. 7, 1922-Jan. 1, 1936.

almost all of which had in them a germ of truth, although the real truth may not have been the actual reason for their recommendation. All doctors agree that a diabetic person must not overeat. Overeating is bad for any one at any time. It helps to bring on diabetes in the predisposed and generally makes the disease worse if one has it. Almost any diet, therefore, no matter how peculiar, will help a diabetic person if it prevents him from overeating. Since the commonest foods overeaten are sugar and starch, restriction of these foods helps, not only because their use leads to sugar being lost in the urine of diabetic patients but because overindulgence in them produces excess fat. The simple lowering of the total intake, and a moderate reduction in sugar and starch may be sufficient to afford relief in mild cases. Even a diet containing a fairly liberal quantity of carbohydrate (sugar and starch) may serve better than a diet which affords almost no carbohydrate yet is excessive in total food value because of its content of protein (meat, fish, eggs and cheese) and fat (butter, cream, fat fish and meat and oil). The great change in the diabetic diet today, however, is due to the discovery of insulin, which when injected into the body allows a diabetic person to eat more carbohydrate than formerly, without losing it as sugar in the urine.

PERHAPS the simplest illustration of the food values of a modern diabetic diet is that represented by 3 quarts of milk. This alone as a diet would be too low in iron and vitamins, a little too high in protein, and too one-sided; even a baby tires of it. But the total constituents of 3 quarts of milk are not far from the values for carbohydrate, protein and fat which are prescribed for diabetic patients by most doctors. In addition to these values, milk offers some of the essential minerals and vitamins.

The total amount of sugar in 1 quart is just about 3 tablespoonfuls, 1½ ounces, or 48 grams. As there are 32 ounces in a quart, each ounce would contain about 1.5 grams. If you prefer to reckon in percentages, remember that milk is about 5 per cent carbohydrate, that an ounce is a scant 30 grams or cubic centimeters and that a quart, or 32 ounces, would be (32 x 30) 960 grams. Therefore a patient taking 3 quarts of milk would receive 3 (quarts) x 48 (grams) or 144 grams of carbohydrate. Calculating by percentage it would be 3 x 960 (grams) x 5 per cent equals 144 grams.

THE amounts of protein and fat in milk are alike by weight; that is, 1 gram to the ounce, 32 grams to the quart, 96 grams to 3 quarts. Thus the total food value of 3 quarts of milk would be represented by carbohydrate, 144 grams; protein, 96 grams, and fat, 96 grams.

The total energy value of 3 quarts of milk is close to that required in twenty-four hours by a man who weighs 132 pounds (without clothing) and does light work. Usually in calculating energy values one uses the metric system. Two and one-fifth pounds equals 1 kilogram. The weight of a man 132 pounds (dividing by 2⅕) is equivalent to 60 kilograms.

A growing, active, healthy child of 1 year, weighing 10 kilograms, and a frail old man of 90, weighing 50 kilograms, need only about the food value contained in from 1 to 1½ quarts of milk, 100 calories per kilogram of body weight for the child and 20 calories per kilogram for the old man. The child is active and growing rapidly; the old man is inactive and probably

is slowly losing weight. An adult requires 30 calories per kilogram of body weight. To estimate the nutritive value in 3 quarts of milk, assign 4 calories, or heat units, for 1 gram of carbohydrate, 4 calories for 1 gram of protein, and 9 calories for 1 gram of fat. The total calories in the 3 quarts of milk are (carbohydrate 144 x 4 equals 576, plus protein 96 x 4 equals 384, plus fat 96 x 9 equals 864) 1,824, or almost exactly 30 calories per kilogram of body weight for a man weighing 60 kilograms, or 132 pounds ($\frac{1824 \text{ calories}}{60 \text{ kilograms}}$).

No one would wish to live long on so monotonous a diet as milk alone. Some of the vitamins in which milk is deficient are contained in fruits, vegetables, meat and fish. Those foods, therefore, are required. A diet which embodies these qualities and in carbohydrate, protein, fat and calories is roughly equivalent to 3 quarts of milk would be as follows:

A Mixed Diet Approximately Equivalent to Three Quarts of Milk

Food	Quantity in Portions, Ounces or Grams	Grams Carbohydrate	Grams Protein	Grams Fat
Oranges	3 (weight, peeled, 450 Gm.)..	45	0	0
Bread	3 slices (3 oz. or 90 Gm.)....	54	9	0
Oatmeal	Small portion (½ oz. or 15 Gm.; if dry, 120 Gm. cooked)	10	3	1
Milk	1 glass (8 oz. or 240 Gm.)...	12	8	8
Cream	⅓ glass (4 oz. or 120 Gm., 20% butter fat).....	4	4	24
Butter	3 portions (1 oz. or 30 Gm., each portion 10 Gm.).....	0	0	25
Egg	1	0	6	6
Bacon	4 crisp strips (1 oz. or 30 Gm.)	0	5	15
Meat	2 medium portions (6 oz. or 180 Gm.)	0	48	30
Green (5%) vegetables	4 portions (20 oz. or 600 Gm.)	20	10	0
		145	93	109

Exercise is helpful to a healthy or a mildly diabetic person. Without it treatment is difficult. Exercise is helpful because with it the carbohydrate is consumed in the muscles. This is not so in a severe case of diabetes because in this condition, insulin is not given and insulin is needed if the muscles are to get the full value of sugar. Since a person with a severe case of diabetes has little natural insulin, he must buy it and inject it into his body if he would be like a normal person. Before the discovery of insulin, doctors never quite understood why exercise would be good for one diabetic patient and harmful to another. The discovery of insulin solved the secret. A normal person and a mildly diabetic one manufacture their own insulin; he who is severely diabetic cannot make his own and so must procure it if he wishes to be able to exercise safely. In the accompanying illustration the third pony, Insulin, steadies the other two, Diet and Exercise.

As I go around the country I see diabetic persons far too often in beds instead of in chairs, and in chairs instead of out walking, in gymnasiums or hard at work. The treatment of diabetes mellitus is based on diet, insulin and exercise; without the latter both doctor and patient are handicapped. Carbohydrate food is burned by exercise, provided there is insulin. To give a sick farmer 45 calories per kilogram of body weight when he is in bed and needs only from 25 to 30 to hold his weight, is irrational and makes treatment difficult. To keep a diabetic child, otherwise healthy, abed in a hospital for days because it is easier in this way to keep him sugar-free than when exercising, shows a lack of appreciation of the importance of exercise in the treatment of diabetes, just as it is against another fundamental law of diabetic treatment to give a patient more food than he actually requires.

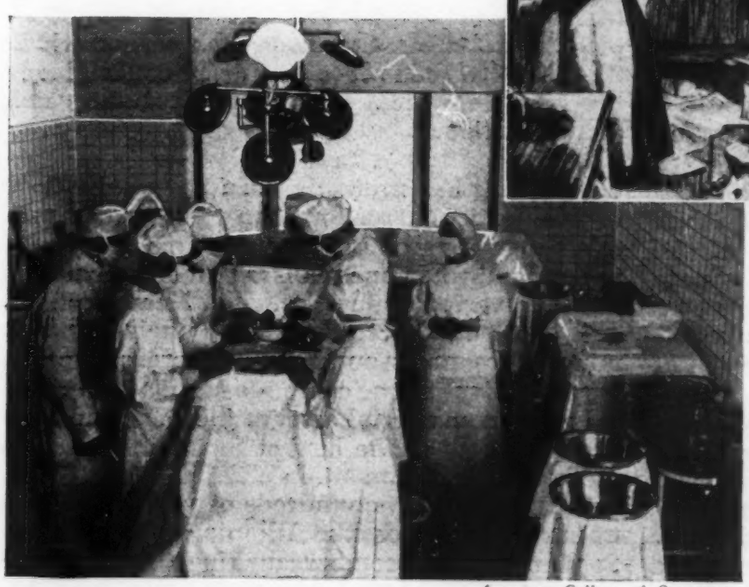
INSULIN came in 1922 when Banting and Best were able to prove from experiments on dogs that this product of the pancreas when injected into a diabetic person would allow him to live like a normal man. It worked a revolution in the management of diabetes. It resurrected patients dying of diabetic coma. The insulin needs of the diabetic vary considerably, according to the extent to which the pancreas fails to furnish insulin. A single dose of insulin acts for but eight hours, and if the patient manufactures little of his own, he must inject it three times a day. Of course that is inconvenient, but it has meant life to the diabetic and the annoyance of it has been cheerfully tolerated because of its great benefit.

Almost sooner than could reasonably be expected improvements have been made in insulin. It is my conviction that protamine insulin, discovered by Dr. Hagedorn in Copenhagen, Denmark, and the American modifications of it will reduce the necessity for injections of insulin to once in twenty-four hours and along with that bring other advances hardly yet dreamed of. Insulin and protamine insulin, however, are stories in themselves, and except to mention them here as the third factor in the treatment of diabetes I must leave them alone.

Of course, it may be maintained that any diabetic patient could learn for himself about diet, exercise and insulin if he would only apply himself. That is undoubtedly true, but doing all this will not suffice. He needs a doctor's guiding hand. A diabetic person is as subject to disease and injury as is any individual, and no patient can learn medicine and surgery in a few hours or days. In addition there are complications of diabetes. A doctor can protect himself because he has studied for four years in a medical school, has lived in hospitals and has seen other diabetic patients. He is in position to give protection if only he is given the chance to do so. Yet, when all is said and done, it holds true that it is the diabetic patient who knows the most about his disease who will live the longest.

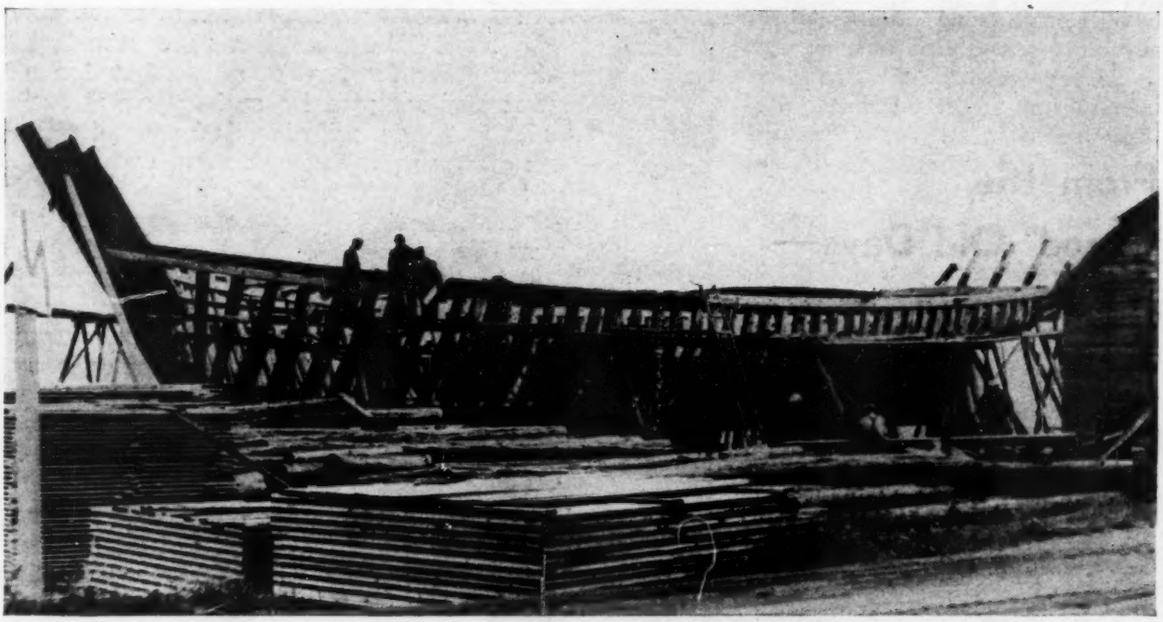
[NOTE.—In the February issue, Dr. Joslin will show that progress in diabetes depends on scientific investigations.]

From the "Good" Old Days—



to the Comfort and Convenience of Modern Ways

American College of Surgeons



THE GASPE FISHERMEN WORK TOGETHER TO BUILD A BOAT FOR "OUTSIDE" FISHING.

Land of the Cod

By MIRIAM ZELLER GROSS

ABOUT 2 million cod will be caught along the Gaspé coast within the next twelve months. During the same period some 4 million will be caught in United States waters to furnish cod liver oil for human and animal nutrition.

Little of the oil from the livers of Gaspé will be used as medicinal cod liver oil because modern refinements of cod liver oil production are practically unknown on the Gaspé. The oil of cod caught there will be used, when used at all, for paints and similar commercial purposes. But this has not always been the case.

Nearly a billion cod have been caught in Gaspé waters during the last 400 years, and the methods by which cod will be caught in 1937 will not differ from those used by the fishermen of this coast in 1537.

Gaspé, or Gaspesia as it is often called, is the finger of land between the St. Lawrence River and the Bay of Chaleur. It is a part of the province of Quebec and covers 11,000 square miles. Ever since its discovery by Jacques Cartier early in the sixteenth century, its people have depended heavily on the season's catch of cod for their very existence.

"It is the Land of the Cod," wrote Abbé Ferland in 1877. "The eyes and the nostrils, the tongue and the throat, as well as the ears, will all convince you that cod is the basic food, the source of all amusements, the object of all trade and conversations, the cause of regrets and hopes, the origin of Fortune and of life, I would even say, the very basis of Society itself."

While the abbé allowed himself some poetic license he did not overshoot the mark when he referred to the Gaspé peninsula as the Land of the Cod. You cannot drive many of the 550 miles of its coastline without being reminded by what you see—and certainly by what you smell—that the abbé was correct. Following the road as it dips through forests or skirts one of the seventy-eight villages along its way, you are almost constantly in sight of either a fisherman's home or the "flakes," built of beech pickets and covered with spruce twigs on which the fish have been set to dry, dried codfish being the form in which you usually find the catch of this section.

Cod fishing has probably been more important to this particular section than to other cod producing sections of the world. This is easy to understand when one realizes that Massachusetts has her varied industries, and Newfoundland and Norway have developed their lumber, mineral resources and farms, whereas the fishing industry from early days has been the principal commercial asset of the Gaspé and has probably proved the largest factor in its settlement and development.

In the early days hundreds of vessels are said to have come across the Atlantic each year from September to December, making this coast the

scene of bustling activity. Historical accounts have it that even in 1534 when Cartier put in at what is now the village of Gaspé and "discovered" the peninsula in the name of France, he found the people already initiated in Old World ways of fishing. Certain it is that remains of Basque rendering plants where blubber was made into oil are still found on the north shore of the peninsula and offer evidence that daring souls from the Bay of Biscay knew this land long before its official discovery.

It probably, however, took the glowing reports of Champlain and his co-adventurers, bearing tidings of rich fish harvest, to start cod fishing along the Gaspé on a commercial basis.

Numerous accounts tell that within a few years of the landing of the Pilgrims on Plymouth Rock, far to the south, sizable fishing fleets were crossing the ocean each year to make their catches and return with them to sell in European markets. Most of the fishermen of the period were Normans from Brittany, Boulogne and Calais. Accounts tell of 1,200 French fishing vessels along this coast and in the vicinity of Newfoundland in the year 1650 alone.

UNDOUBTEDLY, livers from the Gaspé cod furnished a large percentage of the medicinal cod liver oil of that time, and the great activity of Gaspé coast fishermen during the seventeen hundreds, mentioned by various authors, ties in notably with the interest of the contemporary English and continental physicians in cod liver oil. It may be recalled that the medical literature of the period carried numerous references to this product and that it was listed in the British Pharmacopeia as early as 1771, even though it remained for investigators in the vitamin field more than 100 years later to explain its efficacy in preventing and healing rickets and its value in other conditions in which vitamins A and D play a part. It took all these years before modern laboratory methods were developed for preparing cod liver oil and cod liver oil concentrates.

Fishing today, as in 1537, is divided into two classes: inshore and outside.

In the former type, two or three men work in boats about the size of rowboats and fish anywhere from 1 to 10 miles out. Weary, arduous rowing trips of 18 miles to a good fishing spot are not uncommon occurrences. Those who work on the outside have from twelve to twenty men to the boat and go from 50 to 100 miles out to the "banks" in either sail or motor boats which the fishermen have built together.

"The shore boats," according to Margaret Grant MacWhirter in her delightful book "Treasure Trove in Gaspé," "set out every morning at 1 or 2 o'clock, returning if possible in the evening, while those going to the banks set out Sunday evening, returning the following

GASPE COD IS IN GREAT DEMAND IN OTHER COUNTRIES BECAUSE IT IS NOT AS SALTY AS THAT SHIPPED FROM THE MAJORITY OF PORTS.

Saturday night." Those who work outside stay in small boats during the day and from these transport the daily catch to their larger boat.

The tackle used to make the catch is of a simple type whether employed by the inshore or the outside fishermen. It consists of a thin but strong line to the end of which three or more hooks are attached a few inches apart. A lead sinker weighing 3 pounds or more is attached to the end of the hand line. From a swivel at the bottom of the lead a four foot leader carrying the baited hooks is attached, which carries the line to the bottom of the sea when dropped overboard. The line is then raised until the lowest hook is 2 or 3 feet from the bottom.

SOME fishermen, particularly those who go outside, fish with "trawls" or lines carrying 600 or more hooks. A Canadian official, whose business it is to supervise fishing along the Bay of Chaleur, told me of as many as 2,000 of these hooks being used on a single line.

"The trawl is carefully coiled in a tub, so arranged that all the hooks are upon the left

side, in order that the line may run out more readily," according to Mrs. MacWhirter.

"To set a trawl, one end with an anchor attached is dropped as a buoy; the line is run out, the other end being similarly buoyed. Each boat may have two or three trawls with a man in charge of each. The boat being anchored, the fishermen eat and smoke for the interval of two or three hours, before hauling in the trawl. Two men are required for hauling in; the third one removes the fish, gaffing the living ones."

Even inshore fishermen work at a depth of 100 or more feet because the cod is caught near the bottom, where the water is cold. It is believed that when the temperature exceeds 40 F. the cod depart for colder waters.

AFTER the line has been dropped overboard, it is drawn taut so that it will neither drag nor hang too limply. The upper end is either held by the fisherman or twisted around a peg on the gunwale of the boat. An inside fisherman usually handles two of these lines. He holds each between his fingers and thumb so that he can get the "pull" of the cod when it bites. As soon as there have been a number of tugs on the line he hauls up as rapidly as possible, hand over hand, until he has brought up the catch. The fish are unhooked and thrown into the boat. Usually as soon as one line has been pulled up it is time to haul up the other, and a fisherman is generally kept busy hauling up lines, unhooking the catch, rebaiting his lines and dropping them once again to the bottom. Any one who ever spends even an hour in such a procedure will realize that the life of the fisherman is an arduous one requiring strength of arm and back and everlasting perseverance.

DOGS ARE THE ONLY BEASTS OF BURDEN IN MANY PARTS OF THE CASPE.

WITH ONE TIME-HONORED MOVEMENT, THEY RIP OUT THE ENTRAILS AND PUSH THE LIVERS INTO A VAT THROUGH A HOLE IN THE SPLITTING TABLE.

Clams are considered choice bait, and these are used by some of the inshore fishermen. Others, as well as those who fish outside, use squid, cut herring and cut mackerel, perhaps because of the difficulty in keeping a supply of fresh clams on hand. Also, as it takes four or five clams to bait each hook, considerable labor would be involved in opening the shells for enough bait for a large trawl.

THE cod cannot be termed a game fish in any sense of the word, and codfishing will not give the amateur any particular excitement. The cod may make a few pulls when he is first drawn from the bottom, but after that he goes along and acquiesces to the catch unless, as I have sometimes observed, he is so heavy that he can snap the line and get away.

As the lines used by those who fish on the outside are nearly as big around as one's little finger, they are rarely broken, even though cod have been caught weighing nearly 100 pounds. Those of 70 and 80 pounds are frequent "catches" along the Gaspé.

The men who work inshore usually use a lighter line about one third of the size used by the other fishermen, and this, while very strong, can be snapped by a heavy fish. When a big

cod is about to be landed the fisherman often reaches over the side of the boat and catches it by the gills and pulls it into the boat.

When the boat has been fairly well filled or the cod seem to have finished "biting" or the bait is exhausted, the fisherman returns to shore.

Again the procedure is that of a few hundred years ago. It was the business of the beach master then as now to keep the beaches covered with rounded stones and pebbles and as free from sand as possible; also to see that the small boys pulled out the weeds and removed the dèbris.

One writer has stated that second only to mass is the venerable act of cod splitting.

Each detail of the cod splitting table, each tool, the rhythm in the movements of the men and even the barrels in which some of them stand to keep from becoming too messy are survivals of one of the oldest institutions which the white man brought into the new world.

At the splitting table it is said that "the 'splitters' stand with their knives of a pattern handed down through many generations. They grasp the fish by the 'ears' to cut off the heads. With one time-honored movement, they rip out the entrails and push the livers into a vat through a hole in the splitting table, from which the oil will later be collected. With one more swing of the knife the back bone is removed. The fish is then split and is ready to be laid on the 'flakes' and salted."

How differently must the livers used for present-day cod liver oil and cod liver oil concentrates be handled, the fresh livers being processed in great steam cookers right on the boats, before the catch even comes ashore.

Gaspé cod are laid side to side on the "flakes" and salted. During the day the cod is laid with flesh up and then turned skin side up each night so that it will dry properly.

When properly dried it is packed into tubs and drums, packed according to the section of the world for which it is destined. Fish for the Brazilian markets is packed in lots containing 1 Portuguese quintal, or 128 pounds, while that for Italy and the West Indies is packed into casks of 448 pounds.

Gaspé cod is in great demand in other countries because it is not as salty as that shipped from the majority of ports. But, unfortunately, the cod fishermen of the Gaspé have been sorely hit during the last two decades. One of the hardest blows to the industry was the earthquake at Messina, which overnight wiped out 200,000 consumers of dried cod.

Much more recently the sanction against Italy made serious inroads on the Gaspé codfish business as Italy has been one of the heaviest users of dried cod. The sanction worked grave hardships on the Gaspé families, but since its removal, conditions have been almost worse. Now it is said that the Italians demand that the trade be a matter of 80 per cent barter and 20 per cent cash. During the last several months, olives, olive oil, spaghetti and felt hats have been arriving for the Gaspé fisherman in exchange for his cod. While this has its humorous side, as the fisherman never in his wildest dreams imagined the world contained such a thing as an olive, the matter is exceedingly serious because none of the articles offered for barter represent a single one of his necessities in life. This is all the more serious when one realizes that the cod represents his entire capital.

Oddly enough, the porpoise offers a serious menace to the fisherman's security. Great schools of these huge fish play along the coast and feed on the small fish on which the cod depends for its food. As the cod's food becomes exhausted it is forced to make its home elsewhere and in waters not infested by porpoise. The porpoise also frequently consume great hordes of the small cod. *(Continued on page 86)*

MOST WOMEN OF THE GASPÉ BUSY THEMSELVES IN THE ART OF WEAVING, WHICH WAS THE CUSTOM OF THEIR ANCESTORS.

The Doctor Abroad—

FRANCE Part I

The Fourth of a Travel Series on Points of Historical Medical Interest

By LOGAN CLENDENING

THE FACULTE DE MEDECINE IN MONTPELLIER WAS FORMERLY THE BISHOP'S PALACE.

FRANCE presents a number of mementoes of interest to the medical historian. Most travelers will start in Paris, but to be logical—at least chronological—we should start in the South, in the ancient city of Montpellier, and contemplate the buildings of that Faculté de Médecine which, still intact, represent the great medical influence which made itself felt in France while the Italian universities were still in their prime.

The rise of the universities, in the latter part of the Middle Ages, was one of the most important events in civilization—the greatest element in the emancipation of the human spirit, according to the medical historian Hermann Baas.

Between the different universities there is still some rivalry as to the date of their foundation, with Bologna, Paris, Oxford, Padua, Cambridge and Montpellier all contending. The fact is that the early instruction was so informal and unorganized and without authority that it is hard to fix a date for any of the beginnings. "The earliest schools," says Reisman, "were held in modest places and worse, in Paris and Bologna, even in houses of prostitution. At first both masters and pupils sat upon straw on the floor; the masters having a sack of straw so as to be able to dominate their audience."

The date usually assigned to the founding of the University of Bologna is 1088 and that of Montpellier, 1289. The important thing to remember is that these institutions rose spontaneously as an expression of the desire for association, a yearning to break the dreadful monotony of life in the medieval darkness. Whatever the date of their beginnings, by about 1350 they were all established and functioning with a properly authorized and organized faculty in medicine, law and other professions.

In medicine the torch of leadership passed from place to place in a fairly definite order of succession. In the modern world it was first at the three great liberal Italian universities: Padua, Bologna and Pisa. Thence it passed to Montpellier, Leyden, Paris, Dublin, Edinburgh and Vienna.

It is true that the University of Paris is one of the oldest, but medicine was not taught until about the middle of the fifteenth century by the order of barber surgeons. No regular lectures were delivered until 1620, and the present school was not opened until 1776, so it is comparatively a novice.

Of course, so simple an outline of a succession of events does not allow for certain overlappings and back-swings of influence. Paris challenged the Italian universities in the fifteenth and sixteenth centuries, but it produced no great investigators such as Vesalius, Fallopius, Fabricius and Columbus in anatomy, Malpighi in histology or Sanctorius in clinical medicine. Dublin and Edinburgh were almost contemporary in their moment of power. But, with a few other such reservations, the statement holds.

Montpellier was never so brilliant or dominant as the Italian universities. Note that the succession listed was for modern times, at and after the scientific renaissance. Montpellier had a medieval period of prominence when men like Guy de Chauliac, Arnoldus Villanova, John of Gadesden and Gilbertus Anglicus were either pupils or teachers.

All these men were distinctly of the Middle Ages. The student should remember that the Middle Ages were far more dominated by the Arabian physicians than by the Greeks, by Avicenna rather than by Hippocrates. Montpellier, being so near the border of Spain, was

especially under Arabic influences. Nor should such influences be despised. The Arabs were a keenly intellectual race. In some ways their scientific accomplishments were superior to those of the Greeks.

The Arabic system of numerals created the science of arithmetic, for there could be no multiplication, subtraction or division with Roman numerals. The Arabian place system of numerals and the brilliant invention of the numeral 0 made these mathematical calculations possible. The medieval scholar was keenly interested in all this. There are accounts of French and German students traveling to Italy and Montpellier in order to learn multiplication and division, which no one in the North was learned enough to expound.

Guy de Chauliac, the most famous of the earlier graduates of Montpellier, is usually called the Father of Surgery because of his work on the art of surgery, "Ars Chirurgica," completed in 1363. His career is typical of the medieval university scholar in medicine. The actual work of practice in those days was done by a motley crew: the barber surgeon, the midwife, the apothecary, the monk and the nun. The traveling quack, whether he was a "worm specialist," lithotomist, herniotomist or fortune teller, also did a share. The university graduate was high above all these. He was, incidentally, a rara avis. He usually attached himself to a king, a nobleman, a cardinal or a pope, to become physician-in-ordinary, or some such title.

John of Gadesden, one of the graduates of Montpellier during its medieval days, is generally regarded as the original of Chaucer's "Doctor of Physic." In actual life he was the author of the "Rosa Anglica," the first strictly medical book to be printed in English.

The second golden age of Montpellier is associated with the sojourn of Rabelais from 1530 to 1539. Sydenham and Vieussens, and Sylvius, whom we shall meet again in Leyden, were graduated there.

Such thoughts and memories must come to the physician-traveler as he stands before the Faculté de Médecine in Montpellier. It was formerly the bishop's palace. The two statues are those of Montpellier physicians, Le Peyronie (1678-1747) and Barthez (1734-1806). Barthez is known as one of the founders of the eighteenth century theory of disease called vitalism. In the amphitheater inside, the professor's chair comes from the amphitheater at Nimes. In the council hall are portraits of the professors back to 1289.

The medical traveler will push northward from Montpellier to Tours. It is a long push, but Tours is an important city, a railway center, and by changing at Lyons the trip can be made in a day.

At Lyons he may be tempted to turn westward in the Jura and visit the little village of Dole, near Dijon, which was the birthplace of Louis Pasteur. It is in the center of the wine country and should be of further interest for that reason.

At Tours one is instantly reminded of the great medical men of that city by the shaft which arises in a little park not far from the center of the town. It is inscribed to three great Tours physicians: Bretonneau, Velpeau and Trousseau.

Velpeau's story comes to mind best in Paris. Trousseau's professional triumphs also were staged in the capital. But Bretonneau's life was solely of the Touraine. He was the teacher of the other two and kept up a correspondence with them after they had become famous in Paris.

His great work was his clinical description of diphtheria. The previous writers, even Fothergill and Huxham, failed in their accounts to allow of differentiation between this and other forms of sore throat. But a succession of epidemics in Tours from 1818 to 1820 gave Bretonneau the opportunity he needed, and he described the membrane in all its stages and varieties in a way that forever drove home the lesson. He also pointed to the existence of laryngeal and tracheal diphtheria without

IN THE LITTLE VILLAGE OF DOLE IS THE BIRTHPLACE OF LOUIS PASTEUR.

MONUMENT IN THE PUBLIC PARK TO TOURS' THREE FAMOUS PHYSICIANS, BRETTONNEAU, VELPEAU AND TROUSSEAU.

pharyngeal involvement. Only slightly less important than the diphtheria researches were his descriptions of typhoid. These are supreme examples of purely clinical research, using only the resources of the ward and autopsy room.

Even the most medical of travelers, however, will not be allowed by the other members of his party to spend much time on the medical antiquities of Tours. For Tours is in the heart of the chateaux country, one of the great sightseeing spots on earth. In two or three days you can view Chinon, Langeais, Azay-le-Rideau, Chenonceaux, Amboise, Blois and Chambord, and if you learn your French history on the spot, you will know more than most.

Chinon is the birth city of Rabelais, and there is the statue of the great physician-humanist, one of the greatest members of the profession; the fine face looks as if it were about to laugh —or perhaps to pour out a stream of caustic satire.

Between Tours and Paris is Chartres. Here, as at Tours, the major attraction will be nonmedical: the great cathedral, by some considered the most perfect Gothic edifice in the world. Certainly there is no more magnificent stained glass in the world than in the west window of Chartres, the stem of Jesse.

Behind the cathedral, however, the visitor is reminded of something far more important to the daily welfare of mankind than any such edifice or its beauties.

A large plaque stands alone in a little park. The scene represents a farmyard. One man is holding down a sheep, while another is performing an operation on it. Around them crowd a group of eager interested watchers. In the background can be seen other sheep, dead or dying, lying on the ground. Surmounting the plaque is a bust with the features which must be familiar to every medical man—indeed, to every person who makes the slightest claim to kinship with the great works of the modern spirit. It is Louis Pasteur.

And then you remember that below there, on those peaceful farmlands on the plain, was enacted that tense drama where once and for all it was proved that protection against infectious disease by deliberate immunization is possible.

THE whole drama has recently been brought to the attention of the American public by the film, "The Story of Louis Pasteur." The scenes about vaccination of the sheep against anthrax, portrayed there with considerable but not complete accuracy, are commemorated by this tablet.

Let us recall the circumstances. It is the year 1881. Pasteur is 58 years old. His long career in science, culminating in his appointment as administrator of the Ecole Normale in Paris, has been filled both with great successes and with sordid quarrels.

It was in about 1873 that he turned from the "diseases" of chemical substances such as wine, from fermentation, and began to think that minute organisms, microbes, could be the cause of animal and human diseases. He investigated chicken cholera. He had discovered what are now known as streptococci and staphylococci. One day at the Academy of Medicine a speaker said that possibly childbed fever was caused by a microbe, but that it was probable no man would ever see that microbe. Pasteur scornfully strode to the blackboard and said, "I have already seen it. This is what it looks like." And he drew a chain of streptococci.

Finally he had come to anthrax, the fatal disease of sheep and cattle. Koch had demonstrated in 1876 to an astonished group in Professor Cohn's laboratory at Breslau the nature, appearance and life history of the anthrax bacillus, the causative organism. Pasteur, starting from a successful experiment on chicken cholera, had become imbued—"obsessed" would be the better word—with the idea of immunization with an attenuated virus.

It was a chance discovery, an accident in the laboratory. Such things have happened many

times in the history of science. A flask of chicken cholera virus had been neglected and had grown old. It was used for inoculation of a fowl. But instead of dying, as it would with a fresh virus, the chicken was ill for a few days and then recovered. Nor would fresh virulent cultures affect it after that.

The idea occurred to Pasteur that the attenuated virus protected the animal against the disease. He tried it on anthrax, using twenty sheep. Four died immediately. When the sixteen which survived were later inoculated with virulent anthrax, two died.

This was hardly a convincing experiment; yet on that shaky basis he had to meet the challenge of the scientific world at the farm of Pouilly-le-Fort, here near Chartres.

M. Rossignol, one of his severest critics, had purchased sixty sheep and challenged Pasteur to give twenty-five of them protective inoculation and then expose the whole flock to virulent anthrax.

"The twenty-five unvaccinated sheep will perish," said Pasteur decisively. "The twenty-five vaccinated ones will survive." The ten untreated sheep were to be used as controls to show later that the vaccinated sheep were unharmed by the vaccine.

To his colleagues' doubts, Pasteur said, "What has succeeded in the laboratory with fourteen sheep will succeed at Melun just as well with fifty."

A DOUBTING but friendly outsider said to him, "You remember what Marshal Gouvion St. Cyr said of Napoleon that 'he liked hazardous games of grandeur and anxiety.' It was neck or nothing with him: you are going the same way." And Pasteur replied with a truly Napoleonic abruptness, "Yes."

The program which Pasteur had drawn up was printed and widely distributed by Rossignol, so the interest in the experiment was intense. Veterinarians, scientists of all kinds, councilors of the district, and senators of the republic gathered on May 5 at the farm to see the first inoculation.

As an example of the nadir of cynicism it is recorded that one group of his opponents met in a cafe and drank to failure of the experiment, to failure of a procedure which might save the lives of millions of animals and men, which was destined to rid the world of diphtheria, typhoid and perhaps all scourges.

The final test was set for June 2, 1881. All fifty sheep had been given the virulent germs on May 31. All sorts of critical suggestions—that the vaccine tubes be shaken to distribute the more virulent organisms which might settle at the bottom, that a triple dose be given, that the vaccinated and unvaccinated animals be inoculated alternately—had been agreed to by Pasteur with scornful indifference. There had, however, been some trying moments. The night before, Chamberland and Roux had visited Pouilly-le-Fort to judge the condition of the patients. The unvaccinated sheep were in bad condition, but one or two of the vaccinated ones gave anxiety because of their temperature. This bulletin they brought back to Paris. Pasteur's mercurial nature had been greatly agitated, but before the time for his departure for Melun he had received a telegram which set him at ease.

MONUMENT TO PASTEUR IN THE PLACE DE BRETEUIL, PARIS.

And so we come to the scene depicted on the plaque in Chartres. A strange and dramatic spectacle is unfolded before the eyes of the enormous throng. In the field are lying the carcasses of twenty-two of the unvaccinated sheep. Two others of that group are obviously dying; they lie gasping, with the blood streaming from their nostrils.

But the vaccinated sheep are all alive and in perfect health. When Pasteur arrives at 2 o'clock, a cheer of acclamation proves to him the success of his daring demonstration. Rossignol is man enough to come up and acknowledge his errors. Biot, the other most virulent opponent, cries "Inoculate me with your vaccines, M. Pasteur, I am a converted and repentant sinner."

Rossignol and Biot set immediately to perform autopsies on two of the dead sheep.

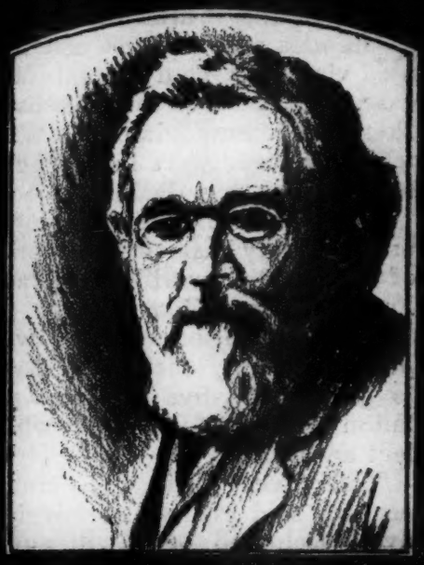
On his way back to the railway station, Pasteur is accompanied by a shouting, enthusiastic crowd.

"The experiment at Pouilly-le-Fort," writes Blowitz in the London *Times* next day, "is an unprecedented success.

[NOTE.—In the February issue, Dr. Clendening will continue his description of points of historical medical interest in France.]

THE MODERN BACKGROUND

By JOSEPH EARLE MOORE



METCHNIKOFF

SYPHILIS, the lonely stepchild of public health, is at last about to be welcomed to the bosom of the family. Together with its older and hitherto more respectable brothers and sisters—smallpox, tuberculosis, diphtheria and typhoid—that black sheep, great pox, begins to share, even if as yet only meagerly and in less than its due measure, in the public health purse. The last few years have seen a literal renaissance of medical and lay interest comparable only to two other periods in the history of the disease, one nearly 450 and the other 30 years ago.

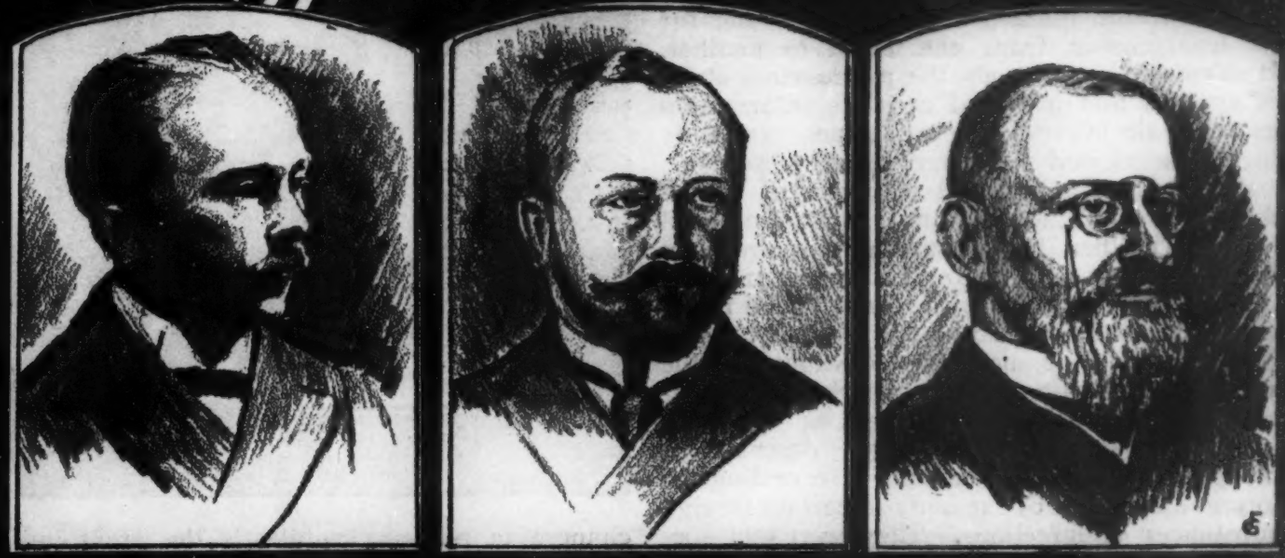
In the flood of publicity which accompanies this rebirth of interest it is constantly reiterated, fortunately with a close approach to the exact truth, that modern medicine has now at hand the weapons with which to reduce syphilis from a major to a minor public health problem within a generation. Two facts make syphilis the greatest of present-day major public health problems in this and most other countries. First is its amazing prevalence. In the United States about 10 per cent of the entire population is infected, and each year a million new cases come under medical care for the first time. The second is its appalling tendency to produce chronic invalidism or death in about one fourth of those infected. Considering these facts the statement that it may be readily controlled is a startling one, worthy of examination from the standpoint of its evolution as well as from that of its practical application. It is of more than passing interest therefore to trace the development of modern knowledge which makes the statement true and to outline in understandable fashion the modern scientific background of syphilis control.

The development of medical knowledge concerning syphilis has been illuminated by two brilliant bursts of speed, the first and second separated by 400 years, and the second followed by 30 years of slow crawling progress. Whether syphilis first appeared in Europe in 1493, brought back by Columbus' sailors as an unwelcome gift from the Americas, or whether, smoldering in Europe before that date, some unknown factor caused it to break forth in wildfire epidemic fashion coincidental with his return is still a matter of debate to the medical historians. Whichever may be the case, our medical ancestors of that remote date knew nothing of it at the time of its appearance. Within a few years, however, the first burst of speed in bedside observation of patients had established most of the important clinical facts: that it was contagious and was usually acquired through sexual contact; that it was not a local but a serious general disease which might affect nearly any part of the body; that it might closely mimic many other diseases; that it was extremely chronic, lasting for many years and often causing disability or death, and that it could be transmitted from parent to unborn child. Empiric experimentation with the entire medieval pharmacopeia, experimentation which had to be carried out on suffering human beings, finally led to the discovery that mercury would, it was thought, "cure" the disease.

The next 400 years added volume and brilliant detail to these original observations and methods of treatment, but little else. In the first decade of the present century the most expert physician was in little better position to deal with syphilis, either from individual or public health standpoints, than his predecessor of 400 years. He could recognize the disease when its manifestations were obvious. He could treat it after a fashion, though, as we now know, less successfully than he thought. But he knew nothing of its cause, and lacking this vital bit of information he was nearly helpless to improve methods of diagnosis or treatment of the individual case or to control its spread.

THE seven brief years from 1903 to 1910 completely altered this dismal situation. The second burst of speed was accomplished by twelve men whose names will always rank high as benefactors of humanity. One Russian, Metchnikoff;

OF Syphilis Control



BORDET SCHAUDINN NEISSER

one Frenchman, Roux; two Belgians, Bordet and Gengou; seven Germans, Schaudinn, Hoffmann, von Wassermann, Neisser, Bruck, Uhlenhuth and Ehrlich, and one Japanese, Hata, make up the galaxy of stars who prove that world progress is better accomplished by international scientific cooperation than by war. To these names may be added, as of 1921, two more Frenchmen, Levaditi and Sazerac. This handful of scientists has laid the groundwork for modern syphilis control.

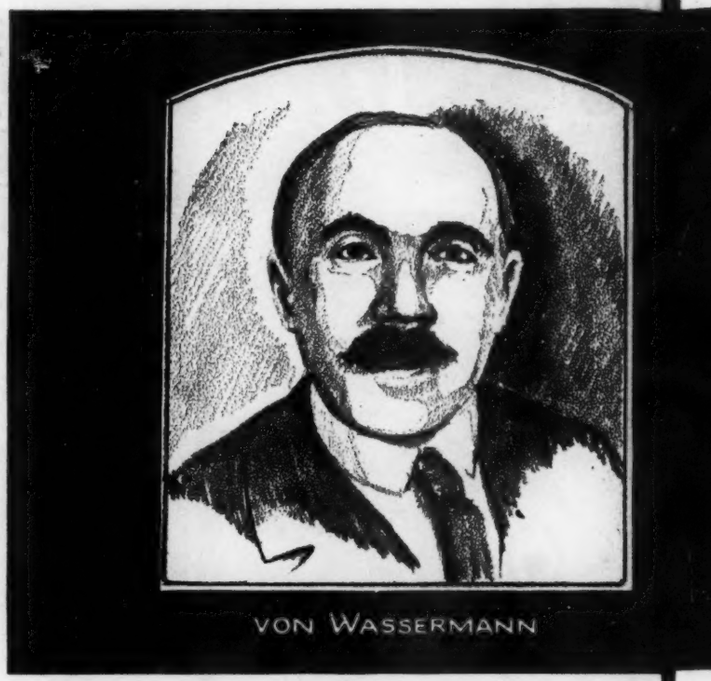
UNTIL 1903, syphilis was thought to be exclusively a disease of human beings. In that year, Metchnikoff and Roux successfully transmitted the infection to apes. In the years succeeding, other workers have shown that other animals, notably the rabbit and white mouse, are also susceptible. The ability to reproduce syphilis in experimental animals has made possible fundamental advances in three important directions, at least two of which are vital to public health control. In animals have been studied the details of the biologic course of syphilis, the mechanisms by which it spreads and those by which the body resists its advances, and the interaction of host and parasite. In animals, experimenters may proceed with efforts to find new and more efficacious remedies. Such efforts, which constitute unjustified experimentation in human beings, bear nearly immediate fruit; and since the original successes are far from satisfactory, further similar studies are still under way in many laboratories of the world. In animals, finally, could be studied methods of prevention of syphilis, an experiment not neglected by the original stars, Metchnikoff and Roux. In 1906 they found that infection in deliberately inoculated apes and in one valiant human volunteer, Maisonneuve, could be prevented by the prompt local application of calomel ointment at the site of inoculation. This single brilliant experiment forms the basis of the chemical prophylaxis of syphilis so widely employed in the armies and navies of the world and so largely responsible for the prevention of syphilis in thousands of boys during the World War.

IN 1905, Schaudinn, assisted by Hoffmann, finally found the pale spirochete and demonstrated beyond doubt that it was the cause of syphilis. In a short few months they brought to an end years of fruitless effort, of false alarms and excursions by other less fortunate searchers. The discovery made possible immediate advances in diagnosis. It provided an opportunity for immediate recognition of syphilis on the very day of its first obvious appearance, thus improving enormously the chance of a "cure." It brought within the diagnostic fold of syphilis a number of important diseases, notably locomotor ataxia and general paralysis of the insane, the exclusively syphilitic nature of which had been suspected by only a few and denied by many. It aided in and made possible an extension of the study of syphilis in experimental animals, an opportunity seized on and

still continuing in many laboratories the world over. It settled the important and debated issue as to whether or not syphilis is transmitted to the unborn child through the father only, by proving that the mother was always infected. It provided accurate information as to the lesions of the disease usually responsible for its transmission from one adult to another. It advanced enormously the postmortem study of syphilis and provided accurate information as to certain hitherto obscure lesions, especially in the heart and the large blood vessels.

As yet the fundamental discovery of Schaudinn and Hoffmann has not borne full fruit because neither they nor the workers who followed them have so far succeeded in growing the spirochete of syphilis on artificial mediums outside the human or animal body. Until this can be done, necessary advances in the study of immunity and the experimental treatment with chemicals are delayed.

In 1901, Bordet and Gengou described a complicated blood test capable of revealing the immune response of the body to certain foreign substances or infections. They were not specifically engaged in the study of syphilis and missed the great prize nearly within their grasp. As so often happens in medicine, three other workers, von Wassermann, Neisser and Bruck, seized on the fundamentals of the test devised by Bordet and Gengou, applied it to syphilis and in 1907 announced the discovery of the diagnostic blood reaction since known everywhere as the Wassermann test.



VON WASSERMANN

MANY subsequent workers have modified and improved this test, increasing fourfold or more its original sensitivity. As now employed the test is nearly specific for syphilis, being positive in only three or four other diseases, most of which are tropical and not readily confused. In syphilis the test becomes positive within from two to six weeks after the first appearance of the disease and in the vast majority of cases remains positive thereafter indefinitely unless modified by treatment. It is so sensitive that it will unfailingly recognize from 80 to 90 per cent of any group of untreated patients at any time after infection. The introduction of this test is responsible for four points of major importance in the control of syphilis. It reduces the rôle of syphilis as an imitator of other diseases to a factor of negligible importance. It has revealed a high frequency of symptomless infection in human beings. It permits the recognition of infection during the long latent periods when there are no outward manifestations of the disease. It provides an accurate method of control of treatment in early syphilis. Each of these points deserves further brief mention.

Before the advent of the Wassermann test the diagnosis of syphilis was often not an easy matter. At any stage of the disease from the chancre to paresis, syphilis is the great imitator of other diseases. Whether the structure involved is the skin, the heart, the liver or the brain, the symptoms and signs produced may be, and often are, those of other and often less serious diseases. For the expert diagnostician and average physician alike, the test resolves most of these difficulties and the diagnosis is both easier and quicker to make.

In many persons infected with syphilis, the usual primary lesion and the secondary outbreak do not develop; or if they do, these lesions are so trivial and evanescent that they do not arouse suspicion that anything serious is wrong. The Wassermann test, used as a routine measure by all good physicians and good hospitals, discovers such unsuspecting persons and brings them under treatment.

Every infected person, whether or not early symptoms have been present, passes through long periods of latency, during which the disease is apparently dormant and the diagnosis cannot be definitely made by any physical examination, no matter how searching. Such latent periods last for years and always precede the final breakdown in heart or nervous system. The routine Wassermann test permits the recognition of such latent syphilis and at a time when treatment will almost surely prevent future trouble. Since syphilis in pregnant women is almost always entirely latent the Wassermann test is the tool that permits the complete eradication of the tragedy of congenital syphilis, the first goal of public health control measures.

Finally, the use of the test in blood and spinal fluid permits an accurate measure of the efficacy and optimum duration of treatment, especially in early syphilis; this is valuable also in all stages of the infection.

EHRLICH

In 1909 and 1910 these three major discoveries of the preceding seven years culminated in the discovery of arsphenamine by Ehrlich. This was the six hundred and sixth drug of the series of chemicals with which he and his Japanese associate, Hata, had experimented in continuation of the work begun by Uhlenhuth; hence the name "606." This drug single-handed controls infectiousness in syphilis with a rapidity not equaled by any other method in any other infectious disease. The surface organisms present in moist lesions are destroyed in a few hours, and the lesions heal in a few days; whereas formerly with mercury this took weeks or months. Enough arsphenamine combined with one of the heavy metals, such as bismuth or mercury, will abolish infectiousness nearly completely, if given by a continuous method without rest periods for a long enough time, about forty weeks. A little more will cure early syphilis. In late syphilis, symptoms may be relieved, lesions healed, health restored and relapse prevented in a high proportion of cases.

EVER since 1910, attempts have been made to find other drugs which require less technical skill to administer than arsphenamine, which are less likely to cause unpleasant reactions and which, most important of all, are more efficacious. Although arsphenamine and its subsequently developed derivatives are great improvements over its predecessor, mercury, in respect to abolition of infectiousness, certainty of cure and shortening of the duration of treatment from five years to two years or less, it must be admitted that the treatment of syphilis by these drugs is still far from ideal. Results are still too uncertain, and treatment is too risky, too painful and disagreeable, prolonged and expensive. For these reasons, further search for better weapons is fully justified.

Lesser lights in our galaxy of stars are Levaditi and Sazerac, who in 1921 introduced bismuth into the treatment of syphilis. This is a drug which has almost completely replaced the 450 year old mercury and which is of great value in public health control methods by aiding in the control of infectiousness initiated by arsphenamine.

Some readers may wonder, considering the publicity given to "friendly fever" in recent years, why I have not included in the list of famous syphilis searchers the name of the Austrian, Wagner-Jauregg, the Nobel prize winner for the development of malaria in the treatment of paresis (1917). He could not be omitted if this discussion were concerned with modern developments, rather than limited to the background of syphilis control. Valuable as fever treatment is for various late complications of syphilis in the nervous system, it has no place as yet in the management of early syphilis, nor is it of value in abolishing infectiousness. Hence fever has no place in a program which is designed to control syphilis through the treatment of the infectious patient.

THE twenty-five years since the 1903 to 1910 burst of glorious speed have been spent in consolidating the gains and in extending fundamental knowledge and its practical application by slow, cautious and often hesitant steps. There are signs in the wind of a fresh burst of acquisition of knowledge in the three most important research fields, the artificial cultivation of the spirochete, the basis of immunity in syphilis and the development of newer and more powerful remedies than arsphenamine. Support, both moral and financial, for researchers in these fields is urgently needed and should be extended not for projects but for brains.

As matters stand today, however, these several discoveries, experimental syphilis, the pale spirochete, the Wassermann test, arsphenamine and to a lesser extent bismuth, are the background of modern control of syphilis. They have provided methods of ready recognition of the disease and a knowledge of the mechanism of infectiousness and of its prompt control, completely lacking thirty years ago. The first and most important elements of the syphilis control program are now the early recognition of freshly infected persons and their proper treatment to prevent the infection of others. If the program is fully developed, as the energetic and powerful support of the U. S. Public Health Service seems to assure, it is certain that congenital syphilis can be nearly eliminated and that an appreciable reduction can be accomplished in the appalling yearly total of 518,000 fresh adult infections.

First Patient

By FLORENCE FITZGERALD

IT WAS a night of wind and scudding clouds and moonlight. Jimmie Swain, aged 10, buttoned his corduroy jacket close around his neck and thought hopefully of snow in the morning.

The days were growing short. At 7 o'clock, as Jimmie hurried tardily home from the Doepner farm a mile out of Fort Atkinson, it was fully dark. No cars passed from either direction.

Head down, hands thrust deep in his pockets, Jimmie scuttled happily around the unprotected end of Fort Atkinson's one lake. Here the wind gathered into a gale that lashed the water stormily against the rocky shore. Dwellings were few and far between at this section of the road, and the solitude seemed as remote as though the small pedestrian who alternately trotted and shuffled his way along the upturned edge of pavement were lost in a primeval wilderness.

The thought was not unpleasing to Jimmie. In imagination he saw himself ploughing through snowy wastes, stumbling on an abandoned shelter, finding there—oh, wonder of wonders!—a long-lost avaiator-explorer for whom searching parties had scoured the snow fields for weary months.

First he would listen for the flyer's heart beat. Then he would probably make a fire and cook some soup or an egg (he'd better find out right away from Mom how to cook good soup). Then he would fix a warm bed. Should he elevate the patient's feet? No, this patient wouldn't be in shock, probably. He'd be starving, or maybe he'd have a broken leg. Maybe he would have crawled on hands and knees to the shelter, little dreaming that Jimmie Swain would be coming to his aid—Jimmie Swain who was going to be Dr. James D. Swain some day. Jimmie knew something about taking care of sick people already because he was old Dr. Barrett's right-hand man on many a drive to see real sick people in the country around Fort Atkinson.

Right now, Jimmie was unable to recall whether the old doctor had ever told him how to feed a man who was starving. If it was a broken leg, of course, he would know just what to do until help came. He must ask the old doctor, who was his best friend and who knew practically everything, just what you had to have handy about your person in case you found a man starving. It wouldn't hurt to know, just in case something happened.

A car interrupted his busy reflections. It was the first in five minutes or more, and it threw a wide fan of light ahead on the tangle of weeds by the roadside. The muffled drone of the engine rapidly expanded into a roar as it swept round the curve.

Then something happened. There was an explosion and a screech of brakes. The driver, desperately caught by a blowout, struggled unsuccessfully for control as his car lurched and skidded and came to a crashing, splintering stop in the ditch.

Jimmie jumped to the high bank and safety at the first sound of trouble. Now he stood rooted in shadows while the wrecked car settled groaning at his feet. The silence of death descended all around him.

Not a car approached from either direction. No one had heard above the high wind. No one came running.

Jimmie's heart beat fast, and there was a queer sensation in his stomach. Somebody was there under the wreck or in the road, somebody who was hurt—or dead. What was he going to do about it?

He was only 10 years old, after all, and for the first time in his life he was alone with horror.

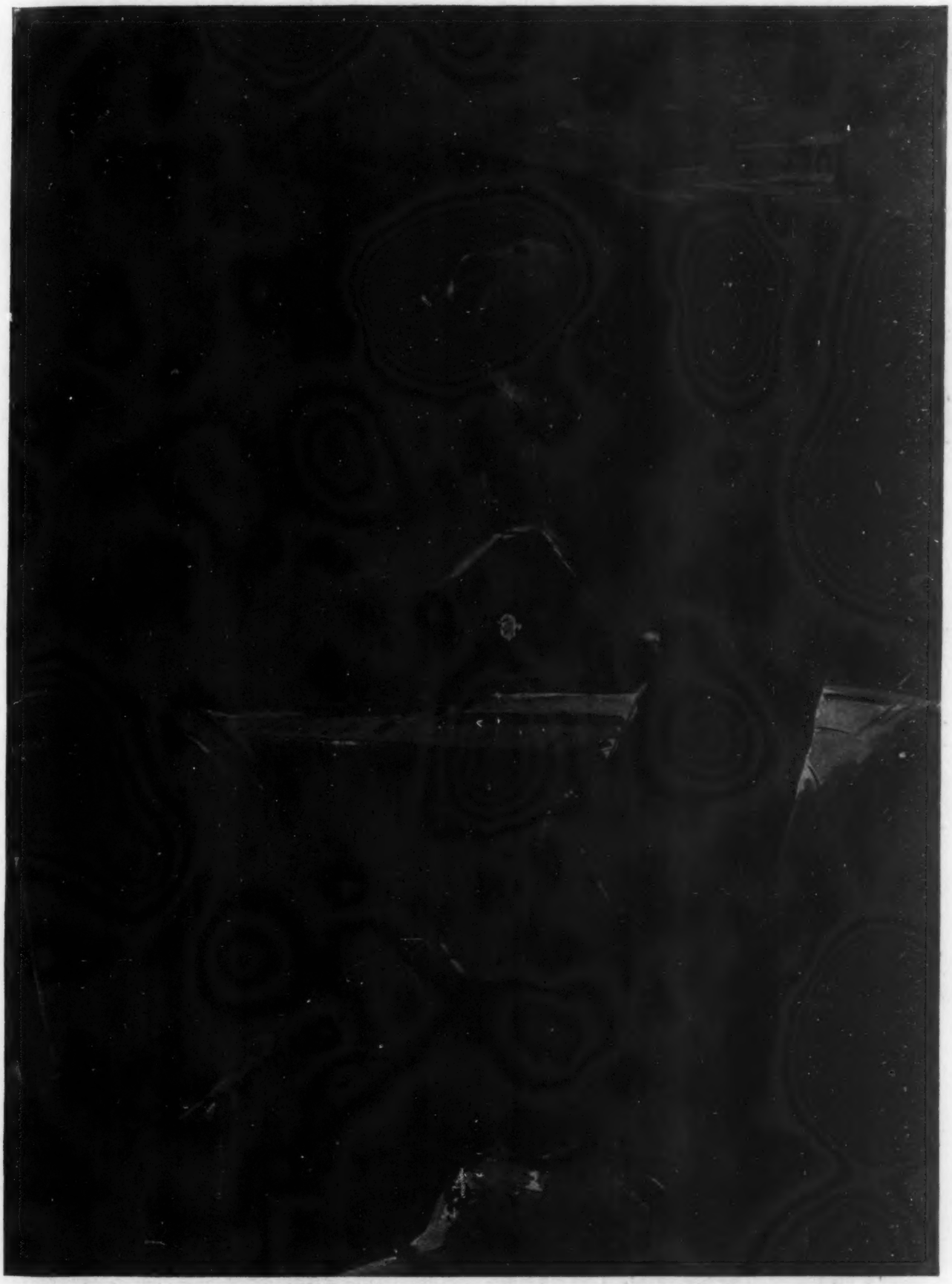
SOMETHING black and huddled lay clear of the wreck on the pavement, something that moved and then was still. Should he cross the ditch and look at it? Or should he take to his heels and run as fast as he could for the old doctor? He would run, of course. This was a job for a grown-up. Mom would say so and his grandmother. Still he stood motionless on the bank, eyes straining toward the black shape on the road.

After all, the question was not what Mom would say but the old doctor. And Jimmie knew the answer to that one. Was he, Jimmie Swain, who was some day to go to medical school and then to come back and take the old doctor's place, going to fail the first time somebody needed him?

Slowly and with that uncontrollable quiver at the pit of his stomach, Jimmie crossed the ditch. He knelt down by the black huddle.

A man lay there, and he was bleeding from what looked like a jagged cut on the forehead. One leg was twisted queerly under the other.

Still quivering, Jimmie moved over to the wrecked car and peered fearfully under it. It was empty and quiet; the man had been alone. Courage and resolution returned as he went back to the injured man in the road.



SOMETHING LAY CLEAR OF THE WRECK ON THE PAVEMENT; SOMETHING THAT MOVED AND THEN WAS STILL. HE STOOD MOTIONLESS ON THE BANK, EYES STRAINING TOWARD THE SHAPE ON THE ROAD. SHOULD HE CROSS THE DITCH AND LOOK AT IT, OR SHOULD HE RUN?

If the bleeding was from the head like this you couldn't use a tourniquet; you had to press on the wound until it stopped bleeding. Well, he would do that. But where was he to find anything he could use? There was no gauze here; no bandages. Ah, but he did have a clean handkerchief, for a wonder. His mother had buttoned it into his pocket this morning. It was still there, a lump in his flannel shirt.

Quickly he refolded it so that the surface should be as clean as possible, and then he pressed it gently over the dark gash. The action gave him new assurance. He bent over, pushed aside the man's coat, listened for his heart beat. It was there, faint and rapid. The man was breathing rapidly, too, and lightly. The forehead under his hand was cold and queerly clammy.

"He's in shock," Jimmie thought with a rising excitement. The phrase had always intrigued him. It was all as though it had been prearranged, a play in which he was the principal actor.

Hastily and without any fear whatever Jimmie made another investigation of the interior of the wreck. Yes; there was a blanket. Moving quickly because he knew there was need of haste, Jimmie covered his patient closely, moved the head gently and slipped his own corduroy jacket underneath it. Now, crouching, coatless and alone, he applied himself earnestly to the bleeding while he waited for help that would surely come soon along the highway.

THE man stirred a little and moaned. Jimmie thought of the twisted leg and of the time when he had gone with the old doctor to the Larson's place in the country. John Larson had fallen from the silo. His leg had been twisted like that. The other boys had dragged him to a pile of hay, and how the old doctor had lectured them! He, Jimmie Swain, would never risk moving any patient of his whose leg looked like that unless he could make a splint for it.

Heavier clouds veiled the moon, and Jimmie, pressing his blood soaked handkerchief to the man's head, was unable to tell whether the bleeding had stopped. He dared not move his small, cramped hand.

Tense and motionless he knelt in the road, and the minutes, passing slowly, were like hours. After a while he considered tearing bandages from his shirt to tie the compress tightly in place so that he could run for help. If he shrieked, and shrieked, would any one hear him? If he left, would another car come along and run right over the blanketed figure in the road, not noticing? Where were all the people who usually whizzed back and forth on this highway?

Then there was the sound of a motor once more and help, at last. Jimmie straightened up stiffly, waved his arms, shouted. The car came swiftly around the curve. It slowed to a stop, and a man jumped out.

"What's the trouble, Son?" the man asked. "Had an accident?"

With a thankful heart, Jimmie started to tell him all about it. But a woman had tumbled out of the car, too, and her shrill cries drowned out all his explanations.

"Look, John, in the road, there! It's a man, and he's dead. Oh, I can't bear to look at him!" The woman's eagerness to look everywhere somewhat belied that fervent declaration. When she looked at Jimmie she made a lunge for him and caught him in a firm, distressing embrace.

SHE crooned over him volubly while Jimmie, outraged, struggled in her arms. "The poor little bitty boy. Are you hurt, dearie? He's all alone with his father. John, for goodness sake, can't you see his father's dying? Pick him up right away. We got to get him to the doctor. There, there, sure, we'll find room for you, too. Sure, sure, we'll take you right home, soon as we take your papa to the doctor. What was it you said, dearie?"

"I said he isn't my papa, and don't you dare try to move him!"

Jimmie ducked out of the woman's embrace and planted himself wrathfully above the wounded man. Something in the boy's militant aspect momentarily halted her excited babble.

"You can't move him. You don't dare to move him!" Jimmie seized his advantage shrilly. "He's got a broken leg. I saw it when I covered him up. If you haul him into your car, maybe the bone'll punch right through the skin. The doctor told me so. Maybe he'll have blood poisoning or something!"

The woman gazed at him stupidly, but the man, who had made a hasty examination of the wreck meanwhile, pushed him unceremoniously out of the way.

"Look out, boy," he said. "We gotta get your dad to the hospital; you can come along with him."

"He ain't my dad!"

IT WAS not so much that Jimmie resented the unanimity with which both assigned to the injured man the rôle of his father. The mistake became a sign in his mind of an imperviousness against which he might struggle in vain.

His voice rose to a wail.

"If you'd just go quick and get Dr. Barrett in Fort Atkinson," he cried, and childish tears all but choked him, "if you'd just git out of here and bring the old doctor!"

"What's the matter with that kid anyway?" the man asked the woman. He was getting impatient.

"The matter is that you're wasting time talking when you should be getting the doctor. Can't you shut your mouth and get into your old car

REFOLDING HIS CLEAN HANDKERCHIEF HE PRESSED IT OVER THE DARK GASH; THE ACTION GAVE HIM NEW ASSURANCE.

and go to Barrett's house right down on the main street? Can't you? Can't you?"

If results are what count, Jimmie Swain has long since been forgiven for this piece of undoubted rudeness.

The man scratched his head and swore softly. The kid was fresh. But it wouldn't be so easy to load the fellow into his small car anyway.

"Stay here," he said to the woman abruptly, and then he was off in a streak down the highway.

Jimmie drew a long breath, his equanimity promptly restored by this sudden, unlooked for triumph.

"If you've got anything clean that'll do for a bandage," he said to the woman, "you'd better get it."

THE woman, it appeared, did have a bandage. In fact, she had a small first aid kit in her bag, and quite skilfully she helped Jimmie to fasten his compress securely on the man's head. Together they tucked the blanket more closely around their patient, who was moaning constantly.

"You're a funny little boy," the woman remarked, at last, and there was unmistakable admiration in her accent. "I'd a been scared to death if I'd been here alone like you. I wouldn't have known what to do, either."

Well, she was a nice woman, after all, thought Jimmie.

"I'm going to be a doctor when I grow up," he informed her gravely; and, if he was an absurd little figure kneeling importantly beside the moaning man and shivering a little from the excitement and cold and the absence of his corduroy jacket, the woman appeared to be entirely unaware of it.

TWO cars were coming from the direction of Fort Atkinson now, and one of them tooted warningly. Jimmie knew that toot, above every horn in Fort Atkinson.

"It's the old doctor," he said happily, rushing to meet him.

It was, indeed, the doctor. He stepped out of his little car and knelt without comment by the figure in the road, and a burden rolled off Jimmie Swain's shoulders.

What would he say? Jimmie waited with some anxiety while the doctor listened to the man's heart, gently lifted the bandage, turned back the blankets and discovered the twisted leg.

"Hm. Bleeding's pretty well stopped I see. Your patient, Jim? Well, go and get that sweater from my car and put it on. You're shivering."

Jimmie ran for the sweater, chest swelling with pride.

The woman had been quiet for a long time, and she could contain herself no longer. "I bet it's the kid's coat under his head. No wonder the boy's shivering. I declare I never thought. He had the man all fixed up like that when we came along. Wasn't that cute of him?"

A SMALL crowd was forming. The road that had been so strangely deserted was filling up with cars. The old doctor worked over the injured man quietly, talking to Jimmie casually about it just as though he too were a grown-up.

"Looks like a bad fracture of the tibia, all right, doesn't it?" the doctor remarked, and Jimmie gravely assented. They were waiting for the ambulance which had been summoned from the hospital.

"Say, Doc." It was the woman's husband, who still lingered near. "I want to know if the kid was right about this guy. If Min and I had had our way, he'd a been at the hospital long ago."

"Sure," said the old doctor sharply, "and by that time he might have had a dirty compound fracture from dragging and rough handling. Lucky for him that Jimmie happened to be here."

"But you could surely move him out of the road onto the grass, couldn't you?"

"My friend," said the old doctor as, rising to his feet and seeing that he had an interested audience, he began a characteristic little speech, "haven't you ever heard the phrase, 'Splint 'em where they lie?' No? Well, it means that you should never under any circumstances move a person with a fracture unless you have already put the injured part into a good emergency splint. If you do you're likely to make a bad matter worse, injure tissue, introduce serious infection. If you don't know whether or not there are any broken bones, play on the safe side and leave him right in the road until somebody comes along who does know. And if you don't know how to make an emergency splint, why you'd better learn right away. Any Boy Scout can teach you! As for bleeding, well, if it's a leg or an arm you can put on a tourniquet; that is, you can tie something tight around the arm or leg above the wound. But if it's on the head you have to use pressure.

"Now, in this case, the cut was on the man's forehead, and so Jimmie used pressure. He saw that the man might have a broken leg, so he simply left him exactly as he fell because he couldn't attend to the head wound and make a splint and move the man all by himself."

The old doctor turned to the boy. "Why did you cover him with the blanket, Jimmie?"

"Because his head felt funny and cold, and he was breathing funny, and I thought he was in shock," Jimmie answered promptly. "You told me yourself the first thing to do was to warm them up when they were in shock."

"Yes. I consider that this case has been excellently handled."

Jimmie stood very straight and tried not to look triumphantly at John.

They could hear the ambulance now, and the crowd swung back to let it through. The police surgeon and the driver would have brushed Jimmie out of the way too, but the old doctor stopped them. They brought emergency splints from the ambulance, slipped them under the injured leg, fastened them and slid the man gently onto a stretcher.

"Come on, Jim," said the old doctor as the ambulance swung around and rolled smoothly back toward Fort Atkinson.

SILENTLY they climbed into the doctor's car. Jimmie was thinking proudly of the old doctor's words spoken out loud in front of all the people. He had said that the case was excellently handled!

The old doctor was thinking of Jimmie, whom he loved like the son he had never had, alone out there with terror and pain, defying stupidity, single handed, and prevailing. He tucked a blanket about the boy and looked at him sharply.

"Out kind of late, weren't you, Jimmie?"

Jimmie wriggled happily in the comforting warmth.

"I was out to Roy Doepner's. His folks were awful late getting back from town, and I kind of forgot what time it was, too. I was just coming home."

It didn't matter if he was late, Jimmie thought peacefully. The old doctor would go home with him. His Mom wouldn't scold when the old doctor told her. He hoped the old doctor would tell Mom that the case had been excellently handled.

OF COURSE, he'd really been quite fortunate; the man just had a cut on the head and a broken leg. Suppose he had been starving like the aviator.

"What do you do if a man's starving?" he suddenly asked the old doctor.

The old doctor laughed. "I guess you feed him first thing," he said. "Had any dinner yourself?, No? Well, neither have I. Suppose we go to your house and ask your Mom to give us both a demonstration of what to do when a man's starving."

The Gonococci

The Tenth in a Series on
The Germs We Live With

By
HERBERT L.
HERSCHENSOHN

AN ANTISEPTIC PLACED IN THE EYES OF NEWLY BORN INFANTS WILL CHECK CONGENITAL GONORRHEAL INFECTION.

FOR MANY years it was universally believed, and today there are many persons who still believe, that syphilis is merely an advanced stage of gonorrhea. It has already been seen that syphilis is due to a specific germ, Spirochaeta pallida. In like fashion, gonorrhea is due to a specific germ, the gonococcus. These germs have nothing in common other than their usual mode of transmission from one person to another through sexual intercourse.

Although it was not until late in the nineteenth century that the gonococcus was discovered the disease which it causes has been known since antiquity. The fifteenth chapter of Leviticus is devoted to ways of preventing its spread to other members in the communities. In the earliest Egyptian and Japanese records there are remarkably accurate descriptions of this affliction together with medical prescriptions for its treatment.

The widespread distribution of gonococci is at once apparent when various authorities report that from 60 to 95 per cent of the male population of the United States have been afflicted by these germs. Such statistics are, of course, difficult to obtain accurately because of the nature of the disease. Many states now require by law that physicians report each case which comes under their observation for treatment. The name of the patient is not mentioned, but the case is reported by number. Thus the physician does not violate the trust of secrecy imposed on him by his ethics. Unfortunately, too many persons attempt to treat themselves by drug store preparations. Aside from the fact that the patients do themselves potential harm, these cases do not enter into the statistics. It is therefore impossible to say how many persons sooner or later acquire the infection. It may be a startling revelation, but it is likely to be closer to the truth to believe that 95 per cent of all men eventually become acquainted with the modus operandi of the gonococci. In women the number is considerably smaller.

There is an erroneous belief that if early attention is given to a victim of a gonococcus invasion, cure will positively result within from three to six weeks and that if the disease persists for a longer period the physician is to be blamed for not employing the most effective measures. Actually the disease depends on too many factors to permit a prophecy of its duration with any degree of accuracy. It may last up to two years even under the most skilful care. In women it may persist for many years.

IT WAS not until 1879 that the gonococcus was actually seen and described. This germ is almost always found in pairs. Each one is shaped like a bean, two germs being next to each other, their concave sides together. They do not have the ability to move about of their own accord. They remain and multiply wherever they are placed. The gonococci vary considerably in size. Their presence within the body stimulates a counterattack by the white blood corpuscles which guard the body against any kind of germ invasion. Thus, if one looks at a glass slide on which a thin film of such pus has been spread and then stained with suitable dyes, both the germs and the white cells may be seen distinctly. Many of the germs will be found within the white cells which have already swallowed them. When all the gonococci are thus disposed of, the battle against them has been won, but not before. As long as there remains a single germ free within the body it has the ability to divide into two parts, each part dividing in similar manner until millions are formed within twenty-four hours. Failure of the white cells to cope with this condition immediately and completely is one factor in the obstinacy of gonorrhea.

Another factor is the peculiar anatomy of those parts in which the gonococci revel. In the male they abound in the urethral canal. The natural darkness, moisture and warmth within this tunnel contribute much to their unbounded growth. Near the opening of this tunnel the germs, not being able to penetrate into the deeper layers, lie on the surface of the cells. There they remain for several hours and if effectively washed out by suitable drugs have a much smaller chance of doing damage. Urination will likewise drive out many of them. However, if undisturbed the gonococci will multiply in such great numbers that their progeny will come into contact with the tissue farther back in the tunnel. Here the tissue is less resistant to the germs, which are readily forced below the surface, new colonies forming. When they enter the fine little tubes which lead to the numerous glands buried within the tissue they set up such an irritation and a swelling that the openings of the tubes become closed. The germs are then locked within the glands. After a case is supposedly cured some of these germs are discharged from the glands when the little tubes open again, and the germs, once more within the main tunnel, the urethra, start another flare up.

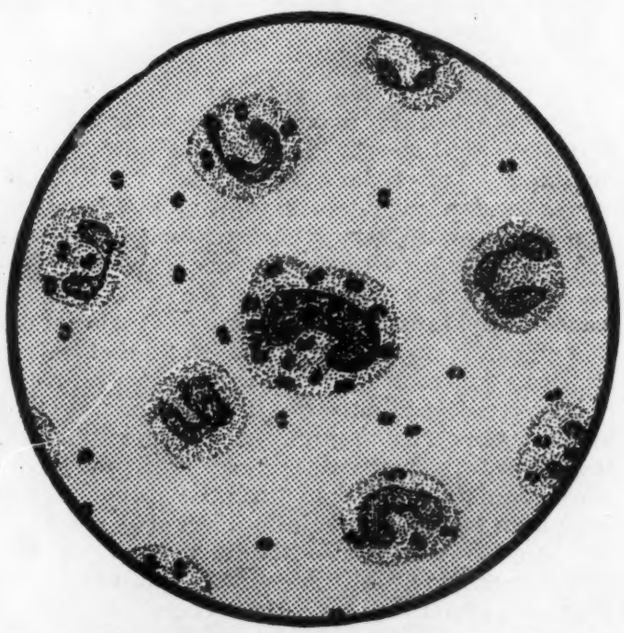
Should the far, back end of the urethra become infected in a man, there is sure to be some involvement of the prostate gland. The prostate is ordinarily about the size of a walnut and is situated at the neck of the bladder. When it becomes infected the gland becomes enlarged and tender. Frequently abscesses form within it. This gland also affords an ideal hiding place for the germs, which may linger for an annoyingly long period of time and thus hinder a cure. For this reason, physicians resort to the gentle massage of the prostate in attempting to free its contents. Such massage is readily done because the gland is so placed that it can be reached by the finger inserted high into the rectum. Even though the gonococci can and do reach the urinary bladder it rarely becomes infected. This is likewise true of the ureters, those tubes which connect the bladder with the kidneys, and of the kidneys themselves.

WITHIN from two or three days to as many weeks after exposure the symptoms of gonococcic infection appear. Experience proves that the sooner the symptoms occur, the more violent the attack is likely to be. The first symptom of which the victim is aware is a slightly itchy sensation at the opening of the urethra, the lips of which become stuck together by a gluey secretion. For the next day or two there is experienced a burning sensation when urinating. Then the opening becomes reddened and swollen. The discharge is at first watery. It soon becomes opalescent and then milky. As the discharge increases in amount it becomes creamy, turning yellowish-green and possibly tinged with streaks of blood. As the condition subsides the reverse takes place, the discharge finally becoming watery and then disappearing entirely.

When the gonococci involve the back part of the urethra, as happens in about 75 per cent of the cases, other symptoms develop. The presence of the germs causes the urethra and that part which connects it with the bladder to become so sensitive that the smallest accumulation of urine creates a most intense desire to urinate. Thus the person is tortured to pass only a few drops perhaps every fifteen minutes. This continues during the night, although to a lesser degree. The pain may last for several minutes even after the bladder is completely emptied.

Any gonococcic infection which lasts longer than three months is considered chronic. The characteristic symptom is the presence of a discharge. This may be intense on one day and barely noticeable on another. In some cases due to the frequent flushings by urination during the day, no discharge is seen, but by accumulation during the night a drop is distinctly seen in the morning. Excitement, sexual stimulation or alcohol in any form can cause a renewed outburst of inflammation. This appears suddenly and as a rule subsides rather quickly. The pain in chronic cases is ordinarily bearable.

The gonococci may be carried in the blood stream to various joints, causing what is known as a gonorrheal rheumatism. This occurs in about 5 per cent of all cases. The percentage of occurrences is probably far greater than this because many cases are not known to be due to



THE SMALL BLACK BODIES, THE GONOCOCCI, ALWAYS APPEAR IN PAIRS. IN THIS PHOTOMICROGRAPH THE WARRING WHITE CORPUSCLES ALSO ARE SEEN.

gonococcic infection, for in most instances the patient tries to suppress the history of such an infection especially if the condition has already cleared up. Usually the following joints are affected and in this order of frequency: knee, ankle, wrist, fingers and toes, elbow, shoulder and hip. Sometimes the jaw is affected.

In traveling through the blood stream the gonococci lodge themselves on the smooth membranes which cover the bones at the joints. Irritated by the presence of the germs the affected membrane becomes swollen and soon exudes a watery, stringy substance which causes adhesions to form between the bones. Limitation of motion results. If pus should form, the joint may undergo destruction. Sometimes only one joint is involved, and that is usually the knee. Occasionally there are wandering pains flitting from joint to joint.

Should the gonococci lodge on the lining of the heart they set up such an inflammation that the valves are distorted and unable to close properly. The efficiency of the heart is then impaired in much the same manner as any mechanical pump when the valves become damaged.

WHEN the gonococci infect a woman a peculiar problem is presented. Many women thus infected make the mistake of believing the white discharge is a simple leukorrhea of only minor importance. The danger of such infection is the possible inflammation and destruction of the tubes and ovaries, resulting in permanent sterility. Inflammation of the tubes does not always result in sterility, but it may cause an even worse complication, peritonitis. At least 10 per cent of all women sooner or later acquire a gonococcic infection, a major cause of "female troubles." Among courtesans, 75 per cent are infected.

Little girls, especially in institutions, are likely to become infected by the use of soiled linens and contaminated clothing or by the infected hands of attendants. A number of cases are due to seduction not only because of lust, as is commonly supposed, but because it is believed by a certain ignorant class of people that intimacy with a healthy virgin will cure a gonococcic infection.

Perhaps the most tragic type of gonococcic infection is that of the eye. This is usually acquired innocently and may result in blindness. There are individual cases in which such an infection is carried to the eye through the blood stream, but the vast majority are the result of touching a contaminated towel, handkerchief or hand. If the mother is infected there is great chance that the eyes of the infant will likewise become infected during the process of birth. Because of this, it is now practically a country-wide law to place an effective antiseptic in the eyes of new-born infants as soon after birth as possible. Silver nitrate (1 per cent solution) or other silver preparations are extensively employed for this purpose. Even then, many infants become contaminated by the hands of the mother or father or attendant at a later date.

It is strange that this disease, gonorrhea, known for so many hundreds of centuries, still presents difficulty in treatment. Thus far there are dozens, perhaps hundreds, of so-called remedies. The fact that there are so many is evidence that none of them is of great value, for should one be found which could positively effect a rapid cure, the others would be discarded immediately. Nevertheless, great strides have been made within the decade, and the disease is being treated today by methods which were totally unknown only a few years ago.

Ordinarily, certain antiseptic solutions are applied to the affected parts with the hope of killing the gonococci. When these solutions are carelessly handled, especially by an overzealous patient himself, they may drive the infection farther into the tissues. Vaccines and the use of certain drugs directly into the blood stream are also improvements in the treatment. The greatest stride forward has been made by the use of the artificial fever treatment. For many years it has been known that a gonococcic discharge in a high percentage of cases stops almost entirely if the patient acquires pneumonia, scarlet fever, malaria, mumps or some other condition of which a high fever is characteristic. Today, various types of apparatus are manufactured to stimulate such a fever artificially. Only a few are perfected to the point where they can be used with confidence, and even these require the skilful management of specially trained physicians and nurses.

As the patient lies in the heat chamber, heated air circulates over the body until the temperature of the body rises to 106 or 107 F. The head remains outside the apparatus and is cooled by an electric fan and cold compresses.

EXPERIMENTS prove that 99 per cent of the gonococci cannot withstand a temperature of 106 F. for more than five hours. If, then, the temperature of the body is raised to 107 F. and kept at that level for as long as from six to ten hours, the gonococci will be killed. The remaining 1 per cent stubbornly cling to life. For that reason several treatments, perhaps six or more, are given at intervals of two or three days.

Generally speaking, one whose condition is such that he cannot undergo any major surgical operation would also be unable to undergo this type of treatment. Despite its limitations, artificial fever holds the greatest promise of a rapid and permanent extinction of the gonococci from the body. Whatever enthusiasm one may have in its use is warranted by the excellent results thus far obtained in killing the world's most obstinate germs.

MARCELLO MALPIGHI

(1628-1694)

Founder of Histology and Experimental Anatomy

By ADOLPH BEILIN

THE SUPERB achievements of Marcello Malpighi stand for all time. Considering the state of learning in the Italy of his day, the vast stock of erudition which he piled up by omnivorous study and incessant experimentation was nothing short of phenomenal. A born scientist, his methods of investigation were thoroughly original and modern. He was not only a practicing physician and a talented anatomic illustrator but also a botanist, zoologist, chemist, histologist, embryologist, anatomist and physiologist, and in much of his work he anticipated the scientific discoveries of the nineteenth century.

Malpighi was born at Crevalcuore, Italy, in 1628. His parents were prosperous farmers whose ample resources enabled Marcello to avail himself of the best educational advantages. In his boyhood he developed a predilection for belles-lettres, the natural sciences and philosophy. Because of the advice of one of his teachers he resolved to study medicine, and in 1651 he matriculated at the University of Bologna, receiving the degree of Doctor of Medicine at the age of 25. In 1656 he was appointed to the position of teacher and investigator in the university of his Alma Mater. The following year he was called to the University of Pisa. Thereafter he rose steadily to fame by reason of the discoveries he made which had a practical bearing on the advance of anatomy and physiology as related to medicine.

In 1661, Malpighi demonstrated the structure of human lungs, showing the presence of air cells and the manner in which the air and the blood are brought together. He made this discovery through experimentation on the frog. Then he applied it by analogy to the structure and function of human lungs; he was the first to demonstrate the similarity of organic structure throughout the animal kingdom. In rapid succession he discovered the pigmentary layer of the skin and the nature of the papillae on the tongue. He proved that the papillae are the organs of taste. For his exhaustive work on the structure of the liver, kidney and spleen, his name has been preserved in the eponym, malpighian bodies. Malpighi is also regarded as

the founder of descriptive embryology. In 1665 he produced an illustrated treatise of the highest excellence on the microscopic anatomy of the chick. In the same year he also described the human red blood corpuscles. His monograph on the structure and metamorphosis of the silkworm and his researches on the anatomy and histology of plants constitute his most painstaking and extensive works. He studied both animate and inanimate objects of many kinds, and the scope of his scientific interests seemed limitless.

Malpighi did not rely on authority in any study that engaged his attention. He refused to accept blindly the teachings of the great men of antiquity. When his microscopes failed him, he had recourse to the "eye of reason." In his work on the kidney he wrote in part: "I never reached my idea of the structure of the kidney by the aid of books but by the long, patient and varied use of the microscope." Like a true naturalist he always looked below the surface in all his researches, into a deeper level of analysis, and it is significant that his highly fruitful achievements were not the product of his day but the consequence of his genius. His methods were always objective and experimental, and he was one of the first to demonstrate the superiority of the scientific method of getting at the truth over the assumptions of authority.

Notwithstanding the fact that Malpighi lived in an atmosphere of persecution, jealousy and acrimonious criticism, he was always gentle under abuse and kindly in his reactions. He was modest, considerate and devoid of any bitterness. In 1668 he was elected an honorary member of the Royal Society of London. During his lifetime many honors were conferred on him from various parts of the world, and from 1691 to 1694 he was physician to Pope Innocent XII. At 68 he died of apoplexy in Rome.

HEALTHGRAMS ✣ from Articles in This Issue

¶The toothbrush must be classed as one of the valuable aids in the prevention of tooth decay. *See page 20*

¶A function that is not exercised deteriorates, and that is just as true of the hearing as of any other function of the body. *See page 8*

¶The taking of castor oil or other physics has probably been the cause of more deaths from appendicitis than anything except delay in having an operation. *See page 12*

¶The first and most important elements of the syphilis control program are now the early recognition of freshly infected persons and their proper treatment to prevent the infection of others. *See page 50*

¶The fact that there are so many potential "cures" for gonorrhea on the market is evidence that none of them is of great value, for should one be found that could positively effect a rapid cure, the others would be discarded immediately. *See page 59*

¶Most of the difficulties besetting the modern scientist are settled by a modern method—mass production. *See page 64*

¶Each individual has a definitely defined need as to total value of food; this need is based on body activity at comparative rest plus the amount used for the usual daily program. *See page 32*

¶Most severe skiing injuries happen to overdaring, foolhardy skiers who have little regard for proper style. *See page 16*

¶Success once attained is meaningless unless one is great enough to know how extremely little any one person can really know about any one subject. *See page 67*

¶Physical education today is certainly interested in providing a program of activities which will exercise the muscles of the body and contribute toward a symmetrical development. *See page 29*

¶Today, doctors cannot predict with accuracy how long a diabetic child will live, because so few die. *See page 37*

¶Deceit is no way to train children to meet life fairly and squarely; the curiosity of the child should be neither repressed nor excited. *See page 73*

Microbes Versus Disease

In Which MILTON SILVERMAN Describes Science's Hunt for Buried Treasure

BURIED treasure! When all else fails, these words will still fire the imagination of adventurous souls, recalling colorful days of thrilling courage and dastardly deceit. Buried treasure—and fierce pirates sailing the Spanish Main, the Jolly Roger flying in the wind, romantic desert isles, hoary chests of gold and jewels, and maps, queer faded parchments, inscribed with mystic signs and cryptic directions.

Those, according to the novelists, were the days, and they have gone forever, leaving our sorry world utterly without the romance of pirate gold and pirate maps.

True enough, those days have passed; but today there is a new era of treasure hunting, a search for hidden jewels infinitely more precious than diamonds or pearls or pieces of eight. This modern hunt, led by the men of science, is for life-saving medicines, for ammunition against disease.

The old treasure hunters found their jewels buried on tropical islands. The new ones find theirs in microbes, some of them close but harmless relatives of disease-causing germs, and some of them the deadly germs themselves.

Pirate treasure could invariably be found by a map. Microbe treasure is uncharted; and when the scientist starts to work he knows neither where nor how to look.

Picks and shovels are useless in this modern treasure hunt. The scientist, forced to design not only new tools but new methods of using them, finds his ingenuity taxed almost to the limit. He must solve scores of problems any one of which would crush a Captain Kidd treasure expert.

For example, how would *you* dig out a precious bit of vitamin from a tiny yeast cell, a "desert isle" less than one billionth of a cubic inch in size? How would you transport treasure that is worth a thousand times its weight in gold but is practically too small to be weighed? How would you fight off death-dealing enemies that you couldn't even see?

The old-time treasure hunter would take one look at such questions and then gracefully disappear. The modern searcher answers these and a dozen like them every day and asks for more.

Most of the difficulties besetting the modern scientist are settled by a modern method—mass production.

No matter how little of a needed chemical there may be in one microbe, in a billion microbes there is a billion times as much. And even though a billion times practically nothing is no great amount, it is better than the original.

It is no particular bother to grow microbes on a large scale for with enough space and food supplies the microbes will take care of that by themselves. Furthermore, since the extraction of the desired substance is carried out not by microsurgical manipulations but by chemical procedures, it is infinitely easier to work with microbes by the billions.

Scientists first realized the possible importance of microbes as a commercial source of valuable chemicals in the years preceding the outbreak of the war. The public was just beginning to hear of a new type of important accessory foodstuff, the vitamins, and the diseases that appeared when these mysterious factors were missing from the diet.

PARTICULARLY striking was the rôle played by one of these substances, vitamin B, in preventing beriberi in men and a peculiar type of paralysis in birds. Doctors soon demanded a supply of this vitamin in concentrated form to be used on their beriberi patients; then in 1913, Casimir Funk discovered that relatively tremendous quantities of it could be isolated from ordinary brewers' yeast.

However, the amount that Funk could actually extract was pitifully small—less than one thousandth of an ounce of active material out of a pound of yeast. Moreover, this material was highly impure; only a small fraction of it was the powerful vitamin.

Even this impure matter, however, possessed amazing curative powers. A few drops would relieve beriberi in a few days and in a few hours would loosen the muscles of paralyzed birds.

Today large quantities of vitamin B are extracted from yeasts on a commercial scale and by a quite remarkable method. The chemist, rather than attempting to remove the vitamin from the yeast, virtually allows the microbe to remove itself and leave the vitamin behind.

Yeasts, vast numbers of them, are first squeezed dry by pressure and then put in a warm container. The microbes, unable to get any food from their surrounding environment, start digesting themselves. By the end of forty-eight hours they have eaten most of their own

bodies, and the vitamin can be easily dissolved in water and carried away to be concentrated and purified.

Vitamin G, used to treat pellagra and other ailments in man, is similarly obtained.

These two substances complete the list of vitamins that are commercially available in yeasts. In addition, there is a third substance which logically belongs in this field—ergosterol, the chemical predecessor of vitamin D, invaluable for the prevention and treatment of rickets in children.

AT ONE time cod liver oil was the unsurpassed source of this vitamin; but today it vies for favor with the microbial product. Actually, the yeast contains no active vitamin D and only small amounts of ergosterol. The latter chemical, however, is readily transformed into the active vitamin by irradiation with ultraviolet light. The resulting material can then be used in a concentrated form for the overcoming of rickets.

Irradiation of ergosterol produces a vitamin so active that one ounce a day will protect a quarter of a billion rats from rickets. A daily quart of cod liver oil will take care of only 10,000 of them.

From an entirely different type of microbe, a fungus, scientists have taken a whole batch of treasure, the ergot drugs. Ergot is no unmixed blessing. When this fungus infects rye and gets into the body with the flour it causes the dreadful St. Anthony's fire, which has swept through Europe time and again since the Middle Ages. A true poisoning, and not an infectious disease, the "fire" is due to potent chemicals in the microbe.

In view of this, it seems odd that ergot could possibly be such a valuable microbe, but toxicity, like size, is relative. In large quantities the ergot chemicals kill; in small doses they cure. By shortening the period of labor and especially by stopping any subsequent hemorrhage they make child-bearing easier and safer for women.

The old European midwives knew this and used brews of the fungus on their patients. It was undoubtedly known by the old Chinese and probably by the Arabs and the Moors. Not until more than a century ago did it make its real entry into official medicine when in 1808 Dr. John Stearns of New York described it to his colleagues.

Later the chemists stepped in and attempted to extract the pure chemical that possessed the

PIRATE GOLD WAS EASY TO FIND IN COMPARISON TO MICROSCOPIC TREASURES.

hemorrhage-controlling characteristics. By 1930, half a dozen pure chemicals had been dug out of this fungus treasure isle, but none was a jewel in any sense of the word, for, unfortunately, none of them worked.

Then, in the early part of 1935, four groups of scientists—two in the United States, one in England and one in Switzerland—announced almost simultaneously that they had found the real buried treasure, the chemical that actually controls bleeding in the womb. They had searched in well turned soil, but they used a different tool, a different method of extracting the treasure.

In the case of ergot the scientific treasure hunters sought a hidden jewel they thought existed. In the case of pentonucleotide the situation was reversed. Scientists knew that this complex substance existed, knew where to find it and how to get it out. But no one realized the use to which it could be put.

Half a century ago pentonucleotide was discovered in yeast cells. Scientists studied it, played with it, noticed that there was always a certain amount of it in normal human blood, and then—since there was no apparent application for it—forgot about it. But one day some investigators in Boston found that it was strangely lacking from the blood of patients dying from agranulocytic angina, the malignant disease in which the blood is almost devoid of white blood corpuscles.

THE Boston workers extracted pentonucleotide from billions of yeast cells, concentrated and purified it, and administered it to their patients.

They reported that whereas agranulocytic angina usually killed 80 per cent of the persons it afflicted, the pentonucleotide treatment, by stimulating the development of white blood cells, reduced this high mortality to 30 per cent or less.

The foregoing compounds—the vitamins, the ergot substances and pentonucleotide—typify the precious medicinal chemicals extracted from relatively harmless microbes. On the other hand, the modern doctor goes still farther and uses materials taken from the disease germs themselves. This, to the bacteria, is treachery of the first water, for the germ finds himself forestalled by his own secretions.

Poison excreted by diphtheria organisms is used in one way to immunize against infection and in another to check up on a child's resistance to the disease. Similar toxin from tetanus bacilli is used in producing tetanus antitoxin.

From the tubercle bacillus is extracted tuberculin, used to detect chronic tuberculosis in men and cattle. In the same way, johnin is used to diagnose Johne's disease in cattle and mallein to diagnose glanders in horses.

Other precious bacterial substances—mysterious, dangerous, but none the less valuable—are at the base of all the vaccines, serums and antitoxins applied today to cure or protect against smallpox, typhoid, rabies, pneumonia, yellow fever, infantile paralysis and many other infections.

Recent experimental additions to this list include methods for determining immunity to epidemic meningitis and possibly for treating it, and for detecting gonorrhea, methods which likewise are dependent on a tiny bit of active material taken from a microscopic cell.

It is generally believed that each of these vaccines, serums and antitoxins is useful in the diagnosis, prevention or treatment of only one particular disease. Most intelligent laymen today would scoff at the thought of using a substance taken from diphtheria organisms to ward off rabies or to cure tuberculosis. But the idea isn't half as foolish as it sounds.

WAGNER-JAUREGG in Austria started this new line of investigation when he discovered that a good case of malaria did amazing things to syphilitic patients.

He realized that the malaria parasites obviously did not gobble up all the syphilis germs. They simply shocked the patient's body, which responded by producing a high fever; and it was this fever which killed off the syphilis organisms.

Similar shocks are produced now by injecting dead typhoid bacteria into patients suffering from chronic arthritis, eye infections and even St. Vitus' dance, or chorea. The typhoid germs, being quite dead, cannot cause typhoid, but the proteins they contain do stimulate a curative rise in body temperature, an artificial germ-killing fever.

This treatment is both safe and efficient, for the degree and duration of the fever can be controlled almost as easily as a housewife regulates the temperature of her baking oven.

In this field of microbial compounds, only the topmost surface has been scratched. Workers in the field refuse to admit that the study is even in its infancy, preferring to believe that the investigations are in only an early embryonic state.

MANY of the hidden microscopic treasures await the development of more efficient methods of extraction. Many require more study so that scientists can determine whether they are real treasures or just more chemicals. And finally there are still hundreds, possibly thousands of microbes which have not even been classified. No one today would dare predict what powerful substances may be hidden in their bodies.

When scientists are able to extend their probings a little farther into microbes, to find more new chemicals and to learn what these chemicals can do, the war against disease may well be turned into an unceremonious rout.

The Talented Child

By
REGINA J.
WOODY

NO LONGER NEED AN ANXIOUS MOTHER TAKE HER CHILD TO EUROPE FOR STUDY AND HER DEBUT, FOR THE BEST TEACHERS AND OPPORTUNITIES ARE HERE IN THE UNITED STATES.

MOTHERS whose children are exceptionally talented in some form of art are often fearful that their children will not be happy because they are so different. Yet gifted children are just as happy as are the more commonplace youngsters; they merely are more adult and less easily directed than the average child. I really believe that the mother whose child is unusually creative is a fortunate person, for if she is wise she can share a glorious albeit a vicarious career of some sort with her son or daughter. Indeed she may so inspire and help her children that they will be able to say in later years, "I succeeded because my mother helped me."

I know this is true for I'm one of those who can say it in all honesty. Without my own mother's devoted and self sacrificing aid I could never have been a successful dancer. With it, at 17 I was earning $600 a week as prima ballerina in Paris, and we were both having an utterly satisfying time. How my mother ever managed to have faith in such an ugly, skinny little runt of a girl as I was, I shall never know.

BUT faith she had, to persuade my father to let me go abroad with her to study dancing when I was only 13 years old. I had danced with considerably more enthusiasm than grace or technic from the time I could toddle; but once abroad, a series of fortunate breaks and my own capacity for and delight in eighteen hours of grueling work every day sent me racing through an opera ballet school to end up at 17 as a star

in my own right in the summer show at the Folies Bergère. In addition, I was receiving as a salary what seemed to my childish mind untold francs for merely enjoying myself. My success was thrilling and unexpected by every one save my loyal mother and father and, of course, my own egotistic little self. My mother's confidence in me in the face of rebuffs, discouragement and fatigue was as great as my own. I could wish no greater boon for any gifted child than to have a mother such as mine.

There are hundreds of undiscovered Shirley Temples and Freddy Bartholomews in the world, but thousands of children try out for these very parts and fail to qualify. Just why, I doubt if any one ever knows. Perhaps a good fairy at birth hovered over the chosen ones; perhaps it was the will of God, perhaps Lady Luck. At any rate many are called, but few are chosen. Life plays tricks like that all through the years. The boy who with proper training would be a gifted surgeon may become only a garage mechanic; the girl with a promising voice may finish as a husky crooner in a cabaret, and a potential Rosa Bonheur may be only a hack illustrator. But when this does happen, and it happens constantly, the harshness of this blow may be tempered if only one may have in one's life the joy of an avocation beautifully and successfully pursued.

Men or women who after business hours can escape from unhappy reality into the work they love live a charmed life. So, if success, bringing thousands of dollars a week and the acclaim of millions as a dividend, cannot be won by your child, see that he has the joy and satisfaction of happily cultivating his talent, even if only in a limited circle and in an entirely unremunerative way. Just because you are brought face to face with the realization that there is no money in it, do not disdain it. That very talent may contribute so much to his happiness and satisfaction in life and in the lives of his friends that it may represent more happiness than could thousands of cold hard dollars.

Food plays a definitely important part in every child's life; and to the child who burns up energy as an apprentice to some serious artistic form, it can prove his making or his undoing.

If a child works late, then he should sleep late, and a hearty nourishing breakfast should be served to him in bed when he wakes. Half an hour's relaxation after that, then up and at school work.

A good luncheon consisting of meat, two vegetables and bread and milk is ample if an afternoon's work is ahead. If he is underweight an hour's rest after lunch should be insisted on, for the rehearsal or lesson burns up energy at a great rate. If possible give him fresh fruit juice and a cookie in midafternoon at some pause in lesson or practice. A small thermos bottle will keep the fruit juice cool and refreshing until needed.

For the child actor or dancer who works in the evening a light supper at 6 o'clock is clearly indicated. Of course this meal will depend on individual tastes; but it must not be rich, not too liquid, and never must it contain heavy pastry or much sweet. The ideal menu consists of lean meat, such as cold roast chicken, beef or lamb; crisp rolls or whole wheat bread; fresh salads, and milk or cocoa. Broiled fish, a small steak or a chop is a wise selection if, because of extra hard rehearsal work, luncheon has been curtailed. I think supper should contain one or two fresh vegetables as well as muffins or rolls, for usually it is eaten early enough to allow at least two hours to elapse before a performance. Simple cakes, custard and stewed fruits and cookies are usually a better topping off for this meal than rich puddings, ice cream or expensive candies.

Once the performance is over, another meal is in order, even if it is midnight, and again it should be light and delicious. Vegetable soups, toasted chicken sandwiches, creamed toast, scrambled eggs, ice cream and cake, these are the types of food which may be eaten quite safely by any child over 6 if he is adult enough to have performed at night in public. Many professionals follow their supper by a two mile walk in the open air, which rids them of nervous excitement and prepares them for sleep. Even if your child is quite young, try to get him to eat a bite and walk a few blocks after an evening performance before he turns in. It is a habit which will prove of help to him all his life, for his sleep will be less disturbed, and morning will not come as such a bitter dose if he has thus shaken off the tenseness engendered by a performance the night before.

Massage will help tired muscles. A hot bath with pine salts will soothe the nerves as well as relieve the pain of strained ligaments. Foot baths for tired dancing feet may be prepared with warm water and magnesium sulfate (epsom salts). Afterward rub the feet and toes with petrolatum (a brand of which is vaseline), powder lavishly, and slip on loose cotton socks and thick, springy bedroom slippers without heels. Wrist strain can be relieved by soaking the wrists and hands in hot perfumed water, and the tired fingers of the musician may be relaxed by special massage, sunlamp treatment and special lotions. For the overtired nerves of the young actor who has been memorizing and rehearsing for hours on end, cool cloths, sprinkled with perfume, and a half hour's rest in a dark room flat on his back will soon ease the strain. Sometimes a shampoo and head massage will banish a nervous headache which responds to nothing else. When aching muscles and joints protest too much during adolescence,

KEEP YOUR FRIENDS' ADULATION A PERSONAL THING, NEIGHBORLY AND SYMPATHETIC, AND DON'T SET TOO MUCH STORE BY IT.

have the child take a long, hot soak in a big tub of clear water; then massage him well all over with cocoa butter, and keep him in bed all day flat on his back. Usually such a day will work wonders in renewing energy and a desire for activity.

DON'T dress the talented child conspicuously save when absolutely necessary. Clothes of good material, becoming and well cut, will permit much healthier and more pleasant mental habits. The child who is always on show is apt to be tired, feverish and pettish on quite the wrong occasions. Any child who must perform when desired and be at his best when he is performing should have his way of life made as easy as possible. No mother should condone disagreeable behavior, but if possible she should remove the cause of such behavior rather than merely punish the child for it. When you must clothe your child to be the cynosure of all eyes try to keep your own attitude as impersonal as possible. Accept beauty of face and body, unusual accomplishment, even an undreamed of success as the just due of a good artist.

Stress the advantages your child has had, and take the cheering and fatalistic pose that genius is born, not made; that he can just thank his lucky stars that he has such a talent and that he had better try to live up to it. If possible, keep your friends' adulation a personal thing, neighborly and sympathetic. Take the large view. Always have another teacher in mind before he outgrows the one under whom he is working. If he shows signs of thinking himself a topnotcher take him to see or hear some master in his own line of work. Never let him settle back on his laurels; always keep something unattainable as a goal just ahead of him. Teach him that, like happiness, success must ever be wooed to be enjoyed. Success once attained is meaningless unless one is great enough to know how extremely little any one person can really know about any one subject.

DON'T talk about your child's career with your friends. It is sure to embarrass him. He is the person to talk to, when you must talk. When failure comes face it together, and try again. When failure comes you have a common bond; it is *your* failure. When success comes it is *his* success. Don't run any one down who has succeeded where he has failed. Don't complain of favoritism. Teach him that competition is keen and hard and often cruel; but that he has to take what life hands out and like it, if he's going to forge ahead. When failure is on him and he has lost out for any reason, put a good face on it, keep your temper, and bake a luscious chocolate cake. Buy a new toy as a present and to show him that you still admire and love him. It is often wise to arrange for a new teacher if he feels that the old teacher's methods were the cause of his failure. A child often has an

uncanny sense of values which adults miss entirely unless they have actually had the same experiences through which he is passing. In discouragement he may ask, "What is the use?" Smile and say, "Better luck next time. Maybe this is just one of those much advertised knocks which is a boost. Let's hope so. It was a tough enough jolt!"

ACTUALLY the talented child always has people and things crowding into his life. There the mother must function and be prepared to smooth the way and take the blame for any offense ever given. A 6 year old cannot dance at three or four dinners or evening affairs a week and still keep up in his school work. If the family needs the money to provide tuition fees, and the child's ability seems to warrant it, a visit to the school must be made and some method of attendance be worked out that will permit the child ample time for sleep, for rest and recreation as well as for study and practice. In theory, it is better for young children not to appear in public; but as long as they do, the mother should zealously safeguard both mental and physical health. If a child is not strong and is exceptionally busy with profitable work, a governess or tutor for a few hours a day may prove the answer to a difficult school problem. No child should be at school from 8:30 in the morning till 3:30 in the afternoon, practice or take lessons in his professional career from 3:30 till 6 p. m. and then be rushed through his evening meal only to be confronted with quantities of home work. Generally speaking, school work is work enough for any child. When a child turns professional he cannot or should not be burdened with a full day's work at school.

I think the most dangerous time for a child's mental and physical health is when he is working hard in school, taking extra music and dancing lessons in the afternoons, studying singing, and appearing in school and semiprofessional musical comedies for charity while still trying to keep up with the parties and good times of his gang. Usually this overworked child gets no sympathy from any one until he actually has a nervous breakdown. Then of course a drastic cutting of extracurricular activities is resorted to. Usually these overburdened youngsters have gotten this way gradually and are quite unwittingly carrying too heavy a program by the time they are 12 or 13. Usually nerve strain appears first; the next symptoms are undernourishment and bad temper, and then school work drops suddenly to failing grade.

When this is the case it is the mother who must straighten out the situation. First she must talk things over with her child and find out whether he wants to be a professional or whether he has been merely a much imposed on individual who was acting, dancing or playing, only because he was reasonably talented and there was no one else who would consent to do it. If so, tell him you'll take all the blame, and forthwith cut down all his outside activities, letting him concentrate on school work, rest and good food. Parties, dances and charity musicals should be ignored. Learn to say "no" with a smile. If, however, your child wants to turn professional and you feel he has genius, clear up his schedule, arrange for easier and less school work, provide proper hours for lessons, rest and recreation. Only in this way can you keep the situation well in hand and prevent overfatigue.

Perhaps the most startling thing a mother has to face is the reversal of rôles which takes place when she finds herself mothering a genius. No longer is she the guiding star; rather does she follow meekly behind like the tail of a comet, ministering to her child's desire, caring for his health and buoying him up in disappointment. Indeed, when a mother finds that she must coax, cajole or threaten to make her child practice, that she must supervise the work done to see that it is good, that a clock is necessary to tell the hour for starting and for stopping practice, that a child misses lesson after lesson for no good reason, then she should beware. That mother is not dealing with real talent; rather is she fostering a delusion and keeping her eyes fixed on a mirage. It is impossible to prevent the great artist, whether he be singer, dancer or painter, from working till he drops. Furthermore, it is equally impossible to drive the merely clever child to fame by a vicarious desire for success, a strong will and a heavy right hand.

SO BEFORE you actually arrange for your child to turn professional be sure that ordinary living isn't what he'd really rather have. Don't rush him into professionalism unless you feel that he would really run away from home or try to die if he didn't have that chance. There are thousands of children whose parents have misled them into believing that the glitter and tinsel of the stage, the applause of a music loving audience or the hanging of a picture in a certain gallery will alone mean happiness for them, when in reality those children may need none of these things. Rather perhaps should they be leading normal middle-class lives, getting only the tinsel and glitter of the amateur plays given by school, church and club. Many a child who plays the piano or violin and goes to try out for a professional engagement should be merely playing in the high school band. And that picture, though perhaps it may be really good enough to win a contest if submitted to one for elementary school children, may not be professional work at all. Try hard not to deceive yourself. Give the child the best lessons you can afford if he wants them; but unless he wants the burdens and the gains of professionalism do not saddle him with *(Continued on page 94)*

THE HAPPY HIPPO

By Sara Sloane McCarty

The baby hippopotamus
Was kicking up an awful fuss.
He gave his keepers forty fits
And smashed his hippo toys to bits.
"Oh, heavens!" cried the wretched crew.
"Whatever shall we keepers do?
"Do you suppose our hippo's ill?
"Perhaps he needs a hippo pill,
"Or possibly a mustard plaster
"Would cheer our little potto faster."

"Oh, please, sirs," cried a brilliant lad,
"I know a cure for hippos bad.
"I've tried it on a lot of 'pots,
"And every one enjoyed it lots."

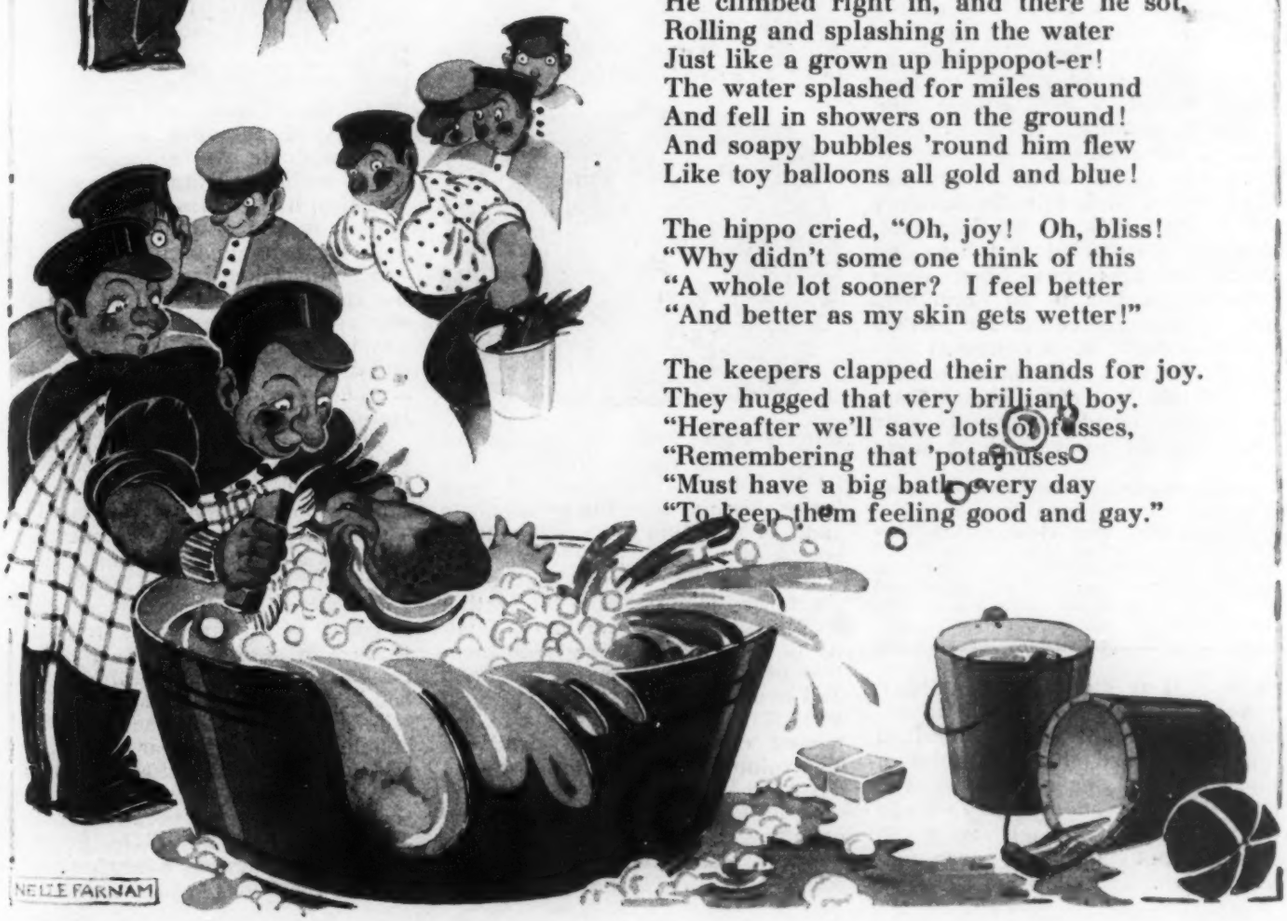
"Hooray!" the keepers all agreed.
"We'll bring you anything you need."

In answer to the hippo's wails
Came forty men with forty pails.
They filled a tub up to the brim,
And into it they hoisted him.

Oh! What a happy hippo tot!
He climbed right in, and there he sot,
Rolling and splashing in the water
Just like a grown up hippopot-er!
The water splashed for miles around
And fell in showers on the ground!
And soapy bubbles 'round him flew
Like toy balloons all gold and blue!

The hippo cried, "Oh, joy! Oh, bliss!
"Why didn't some one think of this
"A whole lot sooner? I feel better
"And better as my skin gets wetter!"

The keepers clapped their hands for joy.
They hugged that very brilliant boy.
"Hereafter we'll save lots of fusses,
"Remembering that 'potamuses
"Must have a big bath every day
"To keep them feeling good and gay."



New Books on Health

AN AMERICAN DOCTOR'S ODYSSEY

By Victor Heiser, M.D. Cloth. Price, $3.50. Pp. 544. New York: W. W. Norton & Co., 1936.

FROM the first paragraph, which plunges the reader into the chilly waters of the Johnstown flood with all its horrors, which the author experienced as a boy, to the last voyage on the deck of an Oriental freighter, with cattle, sheep, Levantines and assorted vermin for company, and a case of oranges for food and drink, there is not one dull moment in this fascinating life story of a health crusader who almost succeeded in "hustling the orient." Hookworm, malaria, plague, leprosy, smallpox, cholera—for twenty years, encompassing sixteen trips around the world, the author fought these diseases and others as a representative of the United States government in the Philippines or of the Rockefeller Foundation in forty-five Oriental countries. He talked with crowds and walked with kings in the best Kipling style. He extracted a smile out of the grimmest situations. He does not boast, but his picture is clear as a man of courage, resource, diplomacy, industry, wide human sympathy and humor. He met disease on all fronts and showed the way to its conquest. That the inscrutable East lapsed back into the lethargy of centuries, in many instances, was to be expected; yet here and there progress has been made which bids fair to be permanent and to act as a center for further dissemination of enlightened hygienic practices. The book, a selection of the Book-of-the-Month Club, is already listed as a best seller among nonfiction works. It ought to be. It is more than autobiography. It is a book of high adventure in health, a tribute to American altruism toward all the peoples of the world, a gleam of hope in a drab time of economic distress and international strife. It is worth reading, not once, but over and over again.

W. W. BAUER, M.D.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

THE PROBLEM OF NUTRITION

VOLUME III. NUTRITION IN VARIOUS COUNTRIES. League of Nations Publications Department, Geneva (Switzerland). Paper. Price, $1.40. Pp. 271. New York: World Peace Foundation, 1936.

THIS report of a committee of the Health Organization of the League of Nations considers the nutritional significance of the foods that are consumed in different countries. The subject is discussed under three main headings: "Post-War Developments in the Field of Nutrition," "A Survey of the Measures Taken in Certain Countries by Governments, Public Authorities and National Organizations to Bring About an Improvement in the Nutrition in Various Sections of the Population" and "Report of the Sub-Committee on Food Statistics of the Mixed Committee on the Problem of Nutrition."

Since the World War there has been an attempt to improve the nutritive condition of the people in both advanced and less prosperous countries. The question of general food shortage is not a matter for anxiety in countries like the United Kingdom, France, Switzerland, Belgium and the Netherlands. In cer-

tain groups even in prosperous countries the dietary regimen may be ill balanced or incomplete and the problem of insuring an adequate state of nutrition is largely one of education.

Data on the United States are scanty or incomplete; in the section on "Measures for Ensuring the Quality of Foodstuffs" there is no mention of the regulations of the Food and Drug Administration or of local and state governmental agencies having control of food products. The volume is of value to those who desire a brief account of the measures undertaken in different foreign countries to improve the diet of mothers, infants and children, and adults on relief.

F. C. BING.

TRUTH AND REALITY

A LIFE HISTORY OF THE HUMAN WILL. By Otto Rank. Authorized translation from the German by Dr. Jessie Taft. Cloth. Price, $2. Pp. 192. New York: Alfred A. Knopf, 1936.

"TRUTH and Reality" is Rank's theoretical explanation of his "will" psychology, the practical application of which is given in his book, "Will Therapy." This may, "in effect," be a new psychology, but actually much has been written heretofore about the rôle of the "will" in human behavior.

In elaborating his concepts, Rank discusses art, religion, science, philosophy and psychology, citing them as factors in "will" formation. The entire presentation is highly theoretical and speculative and is not substantiated by the evidence given.

ROY R. GRINKER, M.D.

A COMPARATIVE STUDY OF UNDERGRADUATE WOMEN MAJORS AND NON-MAJORS IN PHYSICAL EDUCATION WITH RESPECT TO CERTAIN PERSONAL TRAITS

By Anne Schley Duggan, Ph.D. Cloth. Price, $1.60. Pp. 117. New York: Bureau of Publications, Teachers College, Columbia University, 1936.

THIS BOOK gives the results of a study of personal traits in 400 undergraduate women students in three widely separated state universities; half of these students were majors in physical education, and half were nonmajors. The study was undertaken in an effort to determine what type of young woman is entering the profession of physical education and wherein she differs from young women who are choosing other fields of specialization.

This end was achieved through various tests concerned with interests, general information, intelligence, motor ability and personality. The book, a technical presentation, contains a report of the tests, their administration and the observations and conclusions drawn from them as well as a survey of previous studies in similar fields. Detailed tabulations give specific information concerning preferences in recreations, literature, characteristics of people, extracurricular activities and numerous other topics.

The book will be of use to persons interested in vocational guidance and in the selection of teachers of physical education.

LEOLA J. HARRIS.

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Developing Wholesome Attitudes Toward Sex

THE FIFTH OF A SERIES OF EDITORIALS ON UNDERSTANDING THE ADOLESCENT

DOCTOR G. Stanley Hall in his readable volume on the "Life and Confessions of a Psychologist" wrote, "My entire youth from 6 to 18 was made miserable from lack of knowledge that any one who knew anything of the nature of puberty might have given. This long sense of defect, dread of operation, shame and worry has left an indelible mark."

This statement by an eminent psychologist who was also a pioneer in the scientific study of adolescence could be duplicated easily by most adults today. Many years ago when I was sitting at one of Dr. Hall's famous seminars there was a question as to the source of the sex information of those present. With few exceptions every student there had received not only unreliable information but suggestions that were obscene, not to say positively filthy. From such influences it had proved a serious and painful matter to adjust themselves. Doubtless there has been marked improvement in recent years; but even today there are altogether too many boys and girls who are allowed by their parents to garner sex information from the gutter. Such parents seem unmindful of the fact that their children, driven by an intense curiosity, will seek enlightenment from any source available.

TODAY powerful commercial influences have attempted to profit from the universal interest in sex. The screen, novel, radio and cheap magazine with their appeal to millions of youths have done what they could to make youth sex conscious. This is unfortunate since adolescent boys and girls have had little time or opportunity to acquire self control. At the same time there is abroad in the land a false and pernicious psychology based on a misconception of Freudianism which overemphasizes and overadvertises repression as the cause of serious ills. The truth is that a certain amount of repression is a normal necessity. Self control is still necessary for all those who would be mentally healthy.

What can the school do to encourage wholesome attitudes toward sex? This is a debatable question and one over which feeling is likely to run high. Doubtless the vast majority of parents believe today that sex education belongs solely to the home. There is a respectable minority, however, which believes that the school directly and indirectly should offer a certain amount of instruction and training in sex education. Because of the limitations of space only a brief consideration of this problem is possible.

EVERYBODY is agreed that parents have a certain amount of responsibility for sex education. Children need reliable information. Probably few intelligent people believe today that children should be regaled by fairy stories about storks. Deceit is no way to train children to meet life fairly and squarely. The curiosity of the child should be neither repressed nor excited. The time to begin sex education is when the child begins to ask questions about the origin of life. Such questions should be answered in a straightforward fashion without any suggestion that it is improper or wrong. Enough should be told so as to satisfy the child's curiosity at the moment, but no more. In this way the child will acquire all the information needed up to the time he enters school. What he learns should be accurate and should leave him with a wholesome attitude. If such instruction were continued through adolescence and if there were the right kind of instruction and training in the home, the problems of sex education would be largely solved. Unfortunately most parents are not equipped to undertake such education and consequently need help. In this situation the school may function by referring parents to the best literature on the subject. Suggestions may often be given to parents individually or through the medium of a parent-teacher association. One school found that a bibliography on sex education included in a general bibliography on books for parents was welcomed.

IT IS essential that teachers who are to render such service should be familiar with the best procurable material. Among such sources may be mentioned Dr. Thurman Rice's "Booklets on Sex Education" (American Medical Association, 535 N. Dearborn St., Chicago. Price, 25 cents). The U. S. Public Health Service, Washington, D. C., provides parents and teachers with numerous pamphlets on sex education free. Among the many books which I have found serviceable is that masterpiece by De Schweinitz, "The Story of Life."

There is an indirect way in which the school may function in sex education. This method will meet with no opposition by parents or public. It makes use of what psychologists call sublimation, or draining off sex interest into other fields of activity. It has been found that boys and girls who engage in strenuous athletic sports and keen intellectual pursuits and who have wholesome social interests which leave them physically and mentally fatigued are not plagued by sex problems. Both school and home may set back-fires to illicit sex practices by kindling stimulating health interests and activities.

Little experimentation has been done in direct sex instruction in our

public schools. Desirable as it may be theoretically, it is difficult to find teachers who are properly fitted by training or personality to give such instruction, and few communities are ready to sanction such a procedure. Certain it is that it should never be attempted unless both the pupils and the parents are willing.

An experiment which apparently met the conditions mentioned was reported by Gertrude Burgess of Consolidated High School, Morley, Mich., in *Michigan Public Health* for September 1935. A class was organized in this school because of the interest of an instructor and also because of a condition that existed in the school. The instructor had taken work in the field of sex education while in college with the realization that it would have been more helpful if it had been offered during the adolescent period. The vulgar and obscene written material being circulated among the pupils of the school also suggested that sex education might help to remedy the situation.

Before this course was launched a letter was sent to parents outlining the course and asking whether they would prefer to have their children pick up information on sex elsewhere or whether they felt that their pupils were getting enough information of this sort without being taught. It was explained that the course was to be given in separate divisions to boys and girls and that it would consist of a story of life from the time that fertilization took place until the child was about 1 year old. This study was to include a consideration of the sexual organs, their care and diseases, and the care of the mother during pregnancy.

The responses to these letters indicated that practically all the parents were in favor of this plan. The lecture plan was adopted. As some of the students were somewhat timid arrangements were made for a weekly question box. The importance of taking good care of the body to improve the coming generation and the sacredness of the plan of life were emphasized.

The responses of both the parents and the pupils were favorable. The mothers even asked that the same course be given in the evening for them. Other classes outside the ninth and tenth grades where the course was offered asked to have the same course. The general criticism was that a two weeks' course was too short. The state department of health helped by sending a speaker. The appreciation of the course was apparently widespread. It was felt that as a result of the course, vulgarity tended to lose its foothold, and clean, serious, scientific thinking was taking its place.

DOES YOUR SCHOOL NEED A JUNIOR SAFETY COUNCIL?

FLORENCE NELSON
Editor, Safety Education Magazine
NEW YORK CITY

In our best schools today, boys and girls are being trained to deal with their problems of safety effectively. Miss Nelson in the fifth of her series presents some vivid pictures of some of these councils in action. Even if you do not organize such a council you may find many of her suggestions helpful.

IN MY article in the September (1936) issue brief reference was made to the Junior Safety Council and the importance of its contribution to the school safety program.

In his introduction to the "Junior Safety Council Handbook" (National Safety Council, New York City. Price, 35 cents), Prof. Elbert K. Fretwell writes:

"The activities of children are closely associated with their lives —are in fact an integral part of life itself. Hence the importance of the school's activity program, and the value of inspired teacher guidance which can make every phase of this program an endless succession of opportunities through which children may develop the attitudes, habits and skills characteristic of worth while citizens.

"The desire to safeguard one's fellows, and the ability to distinguish between worth while risk and foolish chance-taking must be given an opportunity to develop if on-coming generations of school children and adults are to face a largely mechanized world with success and ease."

Through group activities the pupil's interest in safety is broadened and intensified. His committee work and his participation in council meetings and programs make him familiar with a variety of hazards, and he learns how to avoid them. He accepts responsibilities and obligations, and in this way his attitude is influenced. He develops a respect for authority and for the laws and regulations which are made for the safety of the community.

Naturally the Junior Safety Council's activity program will depend on the size of the school and the particular hazards which are reflected in student accident reports. One school which has a successful safety organization bases the programs of its council meetings and its special activities on actual accident situations relating to the school premises, the neighborhood streets or the homes of the pupils.

For example, a boy has had a bad fall on the school stairway leading to the basement. His knee is severely injured, and he is obliged to remain away from school for several days. Why did this accident happen? The Junior Safety Council investigates and makes the following report at its next meeting: The stairway is narrow and poorly lighted. Pupils are in the habit of pushing and crowding down the stairs in their hurry to leave the building at dismissal time. Several minor accidents have already occurred at this point. The council recommends to the principal that an additional lighting fixture be installed on the stairway. A member of the corridor patrol squad is assigned to duty there to remind pupils to walk, keep in single file and grasp the handrail.

The William R. Belknap School in Louisville, Ky., had a serious traffic problem resulting from double parking near the building. A large number of parents drove their children to and from school. On rainy days, taxis added to the congestion until the hazardous conditions at dismissal demanded special attention.

The traffic committee of the Belknap Junior Safety Council was much concerned over this problem and asked to be allowed to work out a solution. The children wrote letters home to parents, offering a plan to prevent double parking and asking for cooperation. They also wrote to the traffic bureau of the police department, asking that lines indicating parking places be painted in front of the school. A letter to the general manager of the cab company was answered promptly with the assurance that "both the company and the cab drivers will cooperate with you in this movement."

Since the school covered an entire city block there were three

entrances facing different streets. The children worked out a plan whereby certain classes were to use certain exits. Parents and cab drivers were advised where to meet the pupils. At first this schedule was in effect only on a rainy day, but one day there was a downpour just at dismissal time. Parents and teachers were confused. The following letter indicates how the problem was finally solved:

Dear Parents:

We are terribly sorry to bother you again, but conditions make it necessary. We are again asking for your cooperation. After talking with some of the mothers we decided to use the rainy day schedule every day. Will you when you come for your child please park on..... ..... If you send a cab please instruct the driver to park on..... Your child will come out the door nearest..... Avenue. If you drive home some children coming from different rooms, the children will be asked to go out the door the lower grade child leaves by. Will you then park on the street nearest that door?

This will give you a definite place to go each day. We hope this plan will meet with your approval, and that we may count on your cooperation to make it successful.

Yours truly,
The Safety Council

Other councils have taken an active part in fire prevention campaigns and clean-up weeks; they have prepared exhibits, given demonstrations, assembly programs and radio talks and engaged in many other activities which enable pupils to put into practice the knowledge they have acquired in the classroom.

An interested teacher should serve as sponsor for the Junior Safety Council, guiding its activities but allowing the members to feel that they have the responsibility for their own organization. The sponsor attends the meetings but takes no official part, merely offering a hint or suggestion when it is apparent that special guidance is needed.

Two members from each room, elected by their classmates, usually serve on the council. This representation may include every grade, though ordinarily it does not go below the fourth. The principal council committees are as follows:

Program Committee
Plans program for meetings; invites occasional outside speakers; keeps constantly on the alert for good program material.

School Boy Patrol Committee
Made up of the members of the street and building patrol, with the captain of patrols as chairman.

Accident Reporting Committee
Collects and summarizes reports from the individual rooms; prepares summaries for school bulletin board.

Publicity Committee
Has charge of bulletin board; collects safety news and articles for school paper; prepares bulletins, etc.

Inspection Committee
Makes constant inspection of building and grounds to discover and remove possible hazards.

In addition to the regular standing committees, temporary or seasonal committees may be appointed to handle special projects. These committees should be disbanded as soon as they have completed their work.

While Junior Safety Councils are more numerous in the elementary and junior high schools, a considerable number of senior high schools have developed them successfully. In the Evanston (Ill.) Township High School every pupil, on entering the school, automatically becomes an associate council member. A central committee composed of two representatives from each room directs all activities with the assistance of a faculty sponsor. A Safe Drivers' School, essay contests, tests and a homeroom poster service are some of the activities included in this well rounded program.

Two suggested programs for January meetings of Junior Safety Councils follow:

Safety in Winter Sports

1. Report of a special committee which has investigated safe places for coasting, skating and skiing in the school neighborhood.

2. Discussion of how this information can be made available to the entire school (through special bulletin to classrooms, assembly program, bulletin boards and the like).

3. Talk by a member of the city recreation department or police department on how to avoid accidents in winter sports.

4. Demonstration of ice rescues. (Rope, plank, spike methods, and so on. This might be given by Boy Scouts or local Red Cross representatives.)

Safety in Bicycle Riding

1. Report by the captain of the school boy patrol. Bicycle riding in our community.

2. Discussion. Safe and dangerous practices in riding a bicycle. Local laws governing the use of bicycles.

3. Appointment of a committee to prepare a set of safety rules.

4. Dramatization. Bicycling today as compared with the 1890's. (Consult an encyclopedia of sports.)

CHARACTER EDUCATION ON THE PLAYGROUND

EDITH CREED FISHER
SOMERVILLE, N. J.

The great American philosopher John Dewey says that education is life. Certainly the playground is a place where children have the opportunity to learn to live with one another. Miss Fisher tells an interesting story of how a playground became a means of teaching wholesome social adjustments. Are you satisfied with the outcomes of your playground activities? How many of the suggestions in this article can you use?

THE playground period in our school was most unpleasant. It was dreaded by the teacher and of no particular pleasure to the children. An unsportsmanlike attitude prevailed. The period was spent in wrangling over nothing. The older children teased the younger ones. There was much rude talk, and occasionally profane language was employed.

When the teacher tried to have competitive games they ended in quarrels over the scores. The winners would boast, and losers would whine and give alibis for losing.

It seemed that the play period was fostering every undesirable character trait. The teacher felt that the period should be one of her richest opportunities for teaching cooperative living and good social habits. She listed the following as her objectives:

1. To promote health through physical exercise.
2. To give experiences in cooperative living.
3. To give opportunity to act as leader.
4. To give experiences in following a leader.
5. To have fun.
6. To teach consideration for the rights of others.
7. To teach respect for public property.
8. To give appreciation of the outdoors.
9. To teach self control.

On September 24 the children were asked to hold a discussion on the topic "How can we make our play period more fun?" The children discussed the situation and finally set up the following as their rules for the playground period:

1. We should try not to quarrel.
2. We should not use bad language.
3. We must not bother other people's games.
4. We must play fair.
5. We should lose without grumbling.
6. We must not play so rough.
7. We must not brag if we win.
8. We must be willing to play the game most people want.
9. We should make rules for a game and then keep them.
10. We must be brave about being hurt.
11. We must stay on the playground.

To Contributors:—*The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

12. We should take care of school property.
13. We must think about safety rules.

These standards were carefully recorded in a notebook which later became known as the "Playground Book." While some of these standards seemed none too high, still they were accepted as the children gave them for the proper starting point of the group.

The children and the teacher decided that they would have three play groups. The grouping was mostly on a basis of age and grade.

A list of games was compiled by the children and referred to each day before the play period. They could think of only a few at first, but after a few good game books were placed in the library the list grew amazingly.

Before going out a captain was chosen for each group and the game was decided on. The captain was chosen by rotation, but the choice of the game was a different matter. Wills clashed, and children refused to take a part when a game not to their liking was chosen.

Many times at first the teacher had to read from the diary the rule the children themselves had set up. "Be willing to play the game most people want." After a few weeks, however, difficulty over choosing a game disappeared almost completely.

During the thirty minute play period the teacher moved about from group to group, sometimes joining the game, sometimes watching. She never interfered except in rare instances, when perhaps a bloody nose seemed imminent. She made mental notes of any failure to adjust to the group and of any lapse from the standards set up.

When the class returned to the schoolroom the captain of each group gave a report on the play period. These reports were recorded. Also, a report was kept of the games played.

After a short time the teacher was able to note much progress in desirable habits; a highly satisfactory growth had been made in social adjustment and recognition of the rights of others. The playground was now becoming a pleasant place.

The record had been started September 24. On December 5 another discussion was held. The topic was, "Have we kept our rules and have our habits improved?" They reached the following conclusions:

1. We have done pretty well about quarreling, but we should keep working on it.
2. We have improved about rough talk.
3. We have done all right about bothering games.

NEW AND REVISED TEXTBOOKS ON HEALTH

HYGIENE is a growing subject. So rapid are these advances that what is held today as being safely scientific may be suddenly overturned by the announcement of a recent discovery. This makes the revision of old textbooks imperative.

The aims, values and methods of education are also changing. So quickly is this taking place that the teacher who fell asleep at his post a dozen years ago would awake today from his Rip Van Winkle slumber to find himself bewildered. In the fog old landmarks would have disappeared or assumed a disguised form. The language of his colleagues would sound strange as they talk about units of work, centers of interest, the integrated health program and the progressive movement in education. Every good textbook today tries to capture the latest advances in education as well as to present the most reliable scientific information.

At this time several new series of health books for children in the grades have been revised, and new series have appeared. Among the revised series are the Malden Health Series (D. C. Heath & Co., Boston) and the Health, Happiness and Success Series (Lyons and Carnahan, New York). Among the new series are the Health and Growth Series (The Macmillan Company, New York) and the Health and Safety Series (Rand McNally & Co., New York). Thomas Nelson and Sons, New York, also announce a new series, "Adventures in Living."

This deluge of new and revised textbooks will be welcomed by teachers and pupils. The greater the amount of textbooks and reference material, the better. These series differ among themselves, and even the books in the same series vary in value. Some of the revisions show slight improvement, and some of the new series have little new to offer. It would be possible to point out errors and poor judgment in the illustrations. Such criticisms would in general be insignificant. Taken as a whole, these new and revised books are characterized by simplicity of style, human interest appeal and practicability of project. The presentation of material in large blocks or units is common. The reaction material is generally stimulating and useful.

This marked activity in the production of new and revised textbooks is a tribute to a vital movement to make children healthier and happier.

4. We are a little better about playing fairly but need to improve much more.
5. We still play too rough sometimes.
6. We have done well about taking care of school property.
7. We need to be more polite to each other. We ought to be as polite to each other as we are to Mrs. Fisher.
8. We ought to use our rules at home and on the way to school as much as we do at school.

The following reports are chosen at random from the *Daily Record*. They are given in the children's own words.

Sept. 25.—Game went O.K. except for two people quarreling.

Sept. 26.—Good game, no quarrels. One person got hurt but she didn't get angry.

Sept. 30.—Game went fast. We had fun. We didn't quarrel this time.

Oct. 7.—We were good sports today. No one quarreled.

Oct. 18.—Our game was good. We had the most fun of all today.

Oct. 25.—We didn't have any fun. No one would be it. It isn't fun when people aren't good sports.

Nov. 11.—We had fun. Lillian had to be it almost all period, but she didn't get mad and quit. She was a good sportsman.

Nov. 15.—We had a good game. We broke a window with our ball. We ought to write to the Board and tell them how it happened. We couldn't help it.

Dec. 5.—Game was not very good. Too many people acted silly. Some didn't play fairly.

Dec. 19.—We had plenty of fun today. We had a dispute but we were able to settle it.

Jan. 9.—Part of the children went out to sleigh ride. They had lots of fun. Twice people fell down and got hurt but no one quarreled.

Jan. 31.—We tracked rabbits in the snow. It was fun. We got a bird's nest. It is alright to get them now, but not in the spring.

Feb. 18.—We made a map of New Jersey in the snow. It was a good map.

Feb. 19.—We made the map of the U. S. It came out pretty well. We used blue alabastine for the lakes and rivers. It will stay a long time if people are careful about stepping in it.

Mar. 2.—Our play periods are lots better. We can have a game now without Mrs. Fisher. Before we quarreled.

Mar. 13.—We had a good game of baseball. We didn't bother to keep the score. We just played. Nathan's father is going to help us have a team.

April. 11.—The boys had a good game, the girls took a walk. We found violets coming up.

April. 15.—We didn't have a good play period today. There were lots of quarrels. Mike was visiting school and he talked to us about sportsmanship.

April 20.—We had a good game. We asked Miss Sheppard to move her car. We didn't want to break her window.

April. 29.—We worked in the garden. Every one helped. We broke Mr. Van Aulen's scythe. We must be careful of borrowed tools.

May 1.—We went for a walk on the river bank. Every one was careful. We enjoyed the walk.

At the end of the school year the teacher feels that the children have made real growth in social adjustment. They are a far happier group. Discipline is never a problem. The children can join with the teacher in solving any problem that arises. No rewards or punishments are used other than social approval or disapproval. Always this is directed toward the act rather than to the individual.

One point has been observed carefully. Any report of bad behavior omits name. There is no tattling in the accepted sense; the teacher knows of no single instance in which a report led to trouble between children.

Play periods are pleasant times now. Along the side of the school yard runs a river with beautiful banks. It is truly a spot of natural beauty. In previous years there was a rule forbidding the children to play there. This was necessary for safety and discipline. Now the group has become so much more cooperative and trustworthy that the class and teacher go for daily walks along the river.

The older children assume responsibility for the younger ones. No foolish or ugly behavior mars the trip. The class returns from the recreation period happy, refreshed and with an increased appreciation of nature.

HEALTH TEACHING THROUGH CORRELATION

P. C. BECHTEL
Supervisor of Health and Physical Education
WEST LIBERTY, OHIO

Several months ago we published in our columns two guide sheets which Mr. Bechtel had prepared for the use of his teachers. There was such a demand for these guides by HYGEIA *readers that Mr. Bechtel has decided to publish them in book form. The lesson that follows is one of several which have been worked out on the correlation of health with high school subjects.*

FOR many years, most of the schools of this country have been relying to a great extent on correlation for much of the health instruction offered the students in the junior and senior high schools. No one will deny that many of the subjects in the curriculum, such as general science, biology and home economics, offer varied opportunities for effective health instruction. But how much health instruction can be taught by correlation, and how effectively, are problems for which no one as yet has been able to offer a satisfactory solution.

In 1932 the health department of the West Liberty High School, faced with the necessity of establishing

(Continued on page 92)

WATCH YOUR DIET

(Continued from page 36)

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Lunch			
Welsh rarebit on toast (average serving)	10	10	14
Asparagus salad with vinegar (six stalks)	2	4	3
Milk (¾ cupful [6 ounces])	6	7	9
Peach tapioca (average serving)	1	5	51
Milk (¼ cupful)	2	2.5	3
Sugar (1 teaspoonful)			5
Dinner			
Cranberry juice cocktail (3 ounces)			5
Roast duck (average serving)	16	11	
Apple stuffing			11
Mashed sweet potato in orange case (average serving)	2	2	30
Broccoli (average serving)	3	4	4
Hard roll (one)	2	2	11
Cucumber and lettuce salad with vinegar (average serving)	1		2
Tipsy Trifle (average serving)	8	7	27
Coffee			
	78	83.5	266
	×4	×9	×4
	312	751.5	1,064

312 plus 752 plus 1,064 equals 2,128 calories.

MENU 3

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Breakfast			
Banana (one, average size)	1		22
Whole wheat cereal (one)	4		19
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Poached eggs (two)	12	12	
Whole wheat toast (two slices)	4		22
Butter (one pat)		9	
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10
Milk (¾ cupful [6 ounces])	6	7	9
Lunch			
Vegetable soup (6 ounces)	6	3	18
Crackers, salted (two)			8
Cream cheese, raspberry jam and date-nut bread sandwich (one)	8	21	56
Orange and grapefruit salad on lettuce (average serving)	2		11
Milk (¾ cupful [6 ounces])	6	7	9
Dinner			
Beef fricassee (½ cupful)	13	5	
Steamed rice (average serving)	2		16
Steamed baby onions (six small)	2	4	10
Carrot strips (fifteen)	1	4	4
Hard roll (one)	1	2	11
Pear salad on lettuce with pomegranate seeds (average serving)	1		13
Mocha cream	7	6	11
Coffee			
	78	85.5	283
	×4	×9	×4
	312	769.5	1,132

312 plus 770 plus 1,132 equals 2,214 calories.

MENU 4

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Breakfast			
Honeydew melon (average slice)	2		31
Cornflakes (⅔ cupful)	1		14
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Shadroe (one-half pair)	21	4	3
Bacon (one strip)	3	5	
Whole wheat toast (two slices)	4		22
Butter (one-half pat)		4.5	
Strawberry preserves (2 tablespoonfuls)			26
Milk (¾ cupful [6 ounces])	6	7	9
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10
Lunch			
Hamburger (one)	13	5	
Baked potato (one medium)	3		31
Butter (one pat)		9	
Mixed vegetable salad on lettuce (average serving)	2		10
Cooked dressing (2 tablespoonfuls)		10	6
Milk (¾ cupful [6 ounces])	6	7	9
Apple pudding (average serving)	5	10	27
Milk (¼ cupful)	2	2.5	3
Sugar (2 teaspoonfuls)			10
Dinner			
Grapefruit filled with white grapes (one-half)	1		26
Celery hearts (one heart)	1		2
Pistachio nuts (1½ tablespoonfuls)	4	8	2
Fillet of sole stuffed (average fillet)	11	6	
Shrimps (six)	8		
Sauce tartare (1 tablespoonful)		13	
Broiled tomato (one)	1		4
Potato puffs (one)	6	10	35
Fresh lima beans (⅔ cupful)	8	4	22
Pale green salad (one)	2		23
Lettuce (five leaves)	1		1
Pimento mayonnaise (1 tablespoonful)		13	
Lemon ice (average serving)			41
Coconut cake (average slice)	2	1	21
Coffee			
	115	124.5	422
	×4	×9	×4
	460	1,120.5	1,688

460 plus 1,121 plus 1,688 equals 3,269 calories.

MENU 5

Food and Amount	Grams Protein	Grams Fat	Grams Carbohydrate
Breakfast			
Stewed apricots (three halves)	1		15
Boiled rice (½ cupful)	2		16
Brown sugar (3 tablespoonfuls)			27
Milk (¼ cupful)	2	2.5	3
Scrambled egg (one)	6	6	
Broiled tomato (one)	1		4
Whole wheat toast (two slices)	2		18
Butter (one-half pat)		4.5	
Raspberry preserves (2 tablespoonfuls)			26
Milk (¾ cupful [6 ounces])	6	7	9
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10

LUNCH

FOOD AND AMOUNT	GRAMS PROTEIN	GRAMS FAT	GRAMS CARBOHYDRATE
Black bean soup (average serving)	11	3	25
Crackers (two)			8
Crisp bacon (three strips)	7	15	
Carrot and corn pudding (average serving)	5	14	
Whole wheat bread (one slice)	1		9
Butter (one-half pat)		4.5	
Lettuce salad (five leaves)	1		1
Cooked dressing (1 tablespoonful)		5	3
Milk (¾ cupful [6 ounces])	6	7	9
Zwieback torte (average serving)	7	14	14

DINNER

Honeydew balls with mint (thirteen balls)	1		14
Broiled steak (average tenderloin)	19	29	
Buttered potato cubes (average serving)	3	4	31
Green peas (⅔ cupful)	7	4	16
Cooked cabbage (average serving)	2	4	5
Hard roll (one)	2	2	11
Endive salad (average serving)	1		1
French dressing (½ tablespoonful)		5	
Snow pudding with clear lemon sauce (average serving)	7	5	16
Coffee			
	100	138.5	292
	×4	×9	×4
	400	1,246.5	1,168

400 plus 1,247 plus 1,168 equals 2,815 calories.

MENU 6

BREAKFAST

FOOD AND AMOUNT	GRAMS PROTEIN	GRAMS FAT	GRAMS CARBOHYDRATE
Orange (one medium)	1		11
Oat cereal (½ cupful)	3	1	13
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Corned beef hash (average serving)	9	16	
Walnut muffin (one)	3	4	12
Butter (one-half pat)		4.5	
Apricot preserves (2 tablespoonfuls)			26
Milk (¾ cupful [6 ounces])	6	7	9
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10

LUNCH

Cream of green pea soup (average serving)	6	10	9
Croutons (average serving)	1		6
Jellied salmon (average serving)	14	8	
Cucumber garnish			1
Whole wheat bread (one slice)	1		9
Butter (one-half pat)		4.5	
Buttered carrot balls (eight)	1	4	8
Fresh fruit salad on lettuce (average serving)	2		11
Cooked dressing (1 tablespoonful)		5	3
Milk (¾ cupful [6 ounces])	6	7	9
Tea with lemon			
Sugar (2 teaspoonfuls)			10
Sponge cake (one slice)	3	1	15

DINNER

Bouillon (6 ounces)			
Finger length toasted cheese sandwich (one)	1	2	3
Celery hearts (one heart)	1		2
Ham baked with fruit (average serving)	22	23	16
Baked stuffed sweet potato (one)	3	5	46
String beans (about twenty)	3	4	7
Watercress salad (average serving)	1		1
French dressing (½ tablespoonful)		5	
Orange jelly ring filled with pistachio bavarian cream (average serving)	7	6	36
Coffee			
After-dinner mints (six)			30
	96	122.5	337
	×4	×9	×4
	384	1,102.5	1,348

384 plus 1,103 plus 1,348 equals 2,835 calories.

MENU 7

BREAKFAST

FOOD AND AMOUNT	GRAMS PROTEIN	GRAMS FAT	GRAMS CARBOHYDRATE
Stewed prunes (five)	1		28
Rolled oats (½ cupful)	3	1	13
Milk (¼ cupful)	2	2.5	3
Sugar (2 tablespoonfuls)			30
Mushroom omelet (one egg)	6	15	
Whole wheat toast (two slices)	2		18
Butter (one pat)		9	
Cherry preserves (2 tablespoonfuls)			28
Coffee			
Cream (1 tablespoonful)		3	1
Sugar (2 teaspoonfuls)			10
Milk (¾ cupful [6 ounces])	6	7	9

LUNCH

Onion soup au gratin (average serving)	7	5	11
Broiled liver (one slice)	10	3	
Spinach with lemon (⅔ cupful)	3	4	3
Golden glow salad on lettuce (average serving)	3		24
Cooked dressing (1 tablespoonful)		5	3
Milk (¾ cupful [6 ounces])	6	7	9
Tea with lemon			
Sugar (2 teaspoonfuls)			10
Canned peach (one-half)	1		22

DINNER

Lamb chops (two single)	24	36	
Currant mint sauce (3 tablespoonfuls)			39
Parsley potato (one medium)	3	4	31
Stewed celery (⅔ cupful)	3	4	4
Golden vegetable sauce (2 tablespoonfuls)	2	4	2
Coleslaw on lettuce (average serving)	2	5	6
Hard roll (one)	2	2	11
Brown sugar custard pie (average serving)	7	16	28
Coffee			
	93	132.5	343
	×4	×9	×4
	372	1,192.5	1,372

372 plus 1,193 plus 1,372 equals 2,937 calories.

Ladies and Gentlemen:

"YOUR HEALTH!"

The AMERICAN MEDICAL ASSOCIATION
and
The NATIONAL BROADCASTING CO.

Present:

January 5. "SMOG."* W. W. BAUER, M.D.
January 12. WINTER HEALTH HAZARDS. W. W. BAUER, M.D.
January 19. DON'T DIE OF DIABETES. MORRIS FISHBEIN, M.D.
January 26. SCARLET FEVER. W. W. BAUER, M.D.

* *Postponed from December*

This program is available to all stations on the Blue Network of the National Broadcasting Co., the Pacific Coast Network, and many affiliated stations.

TUESDAYS
5 p.m. E.S.T. 3 p.m. M.S.T.
4 p.m. C.S.T. 2 p.m. P.S.T.

HEALTH BY RADIO DRAMA

SKIING AND ITS HEALTH ASPECTS

(Continued from page 19)

Multiple fractures, as many as thirty or more, may be inflicted when the heavy, wet masses of a wet snow avalanche bury and crush the unfortunate skier. The danger of avalanches will be discussed later.

How can one recognize a fracture out in the snow, and what will be the first aid measures? The injured skier is unable to move the injured member; usually there is some deformity, because the broken pieces form an angle with each other instead of being in line; special pain is present at the point of the fracture, and finally an abnormal mobility may be noted.

The first aid measures must have as first and most important aim the immobilization of the fractured limb so that further displacement of the fragments is avoided. The greatest danger lies in the fact that the jagged, sharp ends of the broken bone may pierce the skin, thus creating an open wound. Such a compound fracture always entails the menace of infection which would complicate matters badly.

While the splints and bandages are being applied the fractured extremity must be pulled from both ends to counteract the contracting muscles and to bring the displaced fragments into line with each other. In case of a fracture on the lower leg, for instance, a pull should be exerted upward at the knee and downward at the foot. As a splint one may use a ski pole, a wooden board, a straight branch or anything else solid and straight. The splints should extend beyond the fractured part over the joints above and below; that is, in a fracture of the lower leg from the toes to the hip, in a fracture of the arm or forearm from the hand to the shoulder. The splints must be well padded, which can be done with heavy ski socks, mittens, scarfs or even with moss. Preferable to such improvised splints are surgical splints or splints made from bandages with plaster of paris. Such bandages are molded to the extremity while wet and plastic and are then allowed to harden in place. Ski huts and mountain resorts should be equipped with such facilities to care for injured persons.

Bad cases of frostbite are by far not as common in skiing as one might think from the nature of the sport; while one is moving, the exercise alone keeps one warm, and so skiers are often found active in shirt sleeves even during midwinter. With *(Continued on page 84)*

QUESTIONS AND ANSWERS

Dwarfism

To the Editor:—I am eager for information and a list of books giving information concerning achondroplasia, a type of dwarfism. Is there any treatment that might modify this condition in a 2 year old child? Has any special research been made on this problem in recent years?

Mrs. L. S., Texas.

Answer.—Achondroplasia is a term applied to a certain type of dwarfism associated with disturbance of the epiphyses or cartilage plates near the ends of the long bones. It is at these cartilage plates that bone growth takes place. The etiology is not clear, but recent studies would indicate that disturbed action of the pituitary gland is at least one of the important factors. Deficiencies of the internal secretion of the thyroid gland and of the suprarenal gland may also be involved. It is quite probable that several types of glands may be involved in the same individual. Removal of the pituitary gland in young growing animals is said to cause cessation of growth, while animals similarly operated on but treated with gland extract are said to show normal growth. Results after treatment are by no means certain, and it is indeed questioned by some whether growth increases noted after administration of gland extract might not have occurred without medication.

Since most of this work has been very recent it has not found its way as yet into the textbooks.

Body Odor

To the Editor:—My son, 17 years old, is bothered with sweaty feet. This year he will not attend school because he says the other boys move away from him; I know this is not an excuse, since his feet are offensive. He is very particular about himself in every way, but we have tried everything with no effect. What would you suggest? H. C. K., Illinois.

Answer.—The cause of odor from the body is to be found in the secretions of the skin, particularly in the large sweat glands, the arm pits, the regions about the genital organs and the rectum and on the feet.

Every person has a certain amount of body odor. It is more pronounced in some than in others. Body odor has been greatly played up by certain commercial interests until there has grown up about the subject a number of unwholesome attitudes. It is inevitable that a person who perspires shall have at the time a certain amount of body odor. Sensible persons realize this and do not attach undue importance to it.

The presence of body odor is no indication of lack of cleanliness. There are some persons whose body has an odor almost immediately after thorough bathing, and there is nothing that such persons can do about it.

The treatment is cleanliness, plus the use of some of the liquid or paste deodorants which are advertised. The liquids are based on aluminum chloride in 50 to 25 per cent solution, colored and attractively packaged. The paste consists of zinc oxide and benzoic acid made into a stiff paste. Both kinds are harmless to the ordinary skin.

Tuberculosis of the Eye

To the Editor:—Is tuberculosis of the eye contagious? If it is not treated immediately what will be the probable result?

M. B., Illinois.

Answer.—Tuberculosis of the eye is one of the more uncommon forms of tuberculosis. It is usually an accompaniment of tuberculosis elsewhere in the body, often in the nose and larynx. Occasionally, of course, cases are known in which no other focus has been discovered.

The symptoms are variable and are dependent on the part of the eye that is afflicted. There may be swelling and redness of the lids as well as an excessive secretion of tears. Occasionally a fear of light is present as well as some pain. Other symptoms may be itching, burning and smarting.

While this disease condition is rare, if left alone and no treatment is given, sight may be destroyed. Treatment is usually directed at the tuberculosis present elsewhere within the body through the usual measures of complete rest. Local treatment is applied to the portion of the eye afflicted.

Influence of Heredity on Clubfoot

To the Editor:—Can clubfoot be hereditary? What are its cause and possible cure?

M. K. H., Pennsylvania.

Answer.—The term "clubfoot" includes four varieties of foot deformity. About 77 per cent of all cases of clubfoot are present at birth. According to most authorities, about 5 per cent are inherited. In a small percentage of the patients showing inherited clubfoot, other inherited deformities were also present. Apparently clubfoot occurs relatively more often in a twin or a triplet than in a single birth.

In "Orthopedic Surgery," Sir Robert Jones and Robert W. Lovett state, "We know very little regarding the causes of congenital deformities in general, and we know no more in regard to clubfoot. A great deal of theorizing has been done on this subject, especially whether the muscular contraction or whether the bone deformity was first, and as to the effect of retarded motion of the foot, but no definite conclusions have been given." Again quoting from the same volume, "The problem of treatment is simple; the foot should be overcorrected by the mildest, simplest means, and kept in this . . . position until the bones have been reshaped and the parts have adapted themselves and the muscles have acquired sufficient strength to maintain the foot."

In the opinion of workers in this field the treatment should always be operative or manipulative. By manipulative is meant the use of such apparatus as will bring about a straightening of the foot. Such apparatus may not include the knife, yet the entire procedure belongs in the field of orthopedic surgery. Treatment at present is not as yet universally successful, but it must be remembered that the earlier in life treatment is started, the milder are the procedures necessary to obtain correction; the later in life treatment is started, the more severe are the measures required.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Venereal Disease

To the Editor:—I should like to get some information about a recently introduced method of cure for gonorrhea and other venereal diseases in which the x-rays are generated through the body in such quantity as to kill the germs but to be harmless to the patient.

E. J., Illinois.

Answer.—It is doubtful just what the questioner has in mind when he says, "generated through the body." If he means passed through the body he is talking of something that is done millions of times every year. If he means that the passage of the x-rays through the body causes the body to store up the rays or to generate more of them he is talking of something that just does not happen.

There is no difficulty whatever in passing x-rays through any portion of the body. In fact, that is what is done every time an x-ray picture is taken. It also is done every time an x-ray treatment is given for cancer or other diseases. For the treatment of such conditions enormously powerful x-ray machines are now in use, and if the x-ray had any influence on germ diseases the practice of medicine would be rather a simple matter in a host of such diseases. It would be necessary merely to turn on one of these powerful x-ray machines, slide the patient slowly under it and bring him out the other end a well man.

Unfortunately it is only in the advertising of conscienceless charlatans that the x-rays ever get such wonderful powers. Certainly the medical profession with all its marvelous x-ray equipment has made no such claims. The difference lies between honesty on the part of the ethical physician and a willingness on the part of the quack to make any claim as long as it fools enough people to fill his coffers.

Gonorrhea is one of the secret diseases. Its victims predominately are young and easily fooled by high-sounding promises. Public knowledge about the disease is wofully lacking, and until the public shows real interest in obtaining a more thorough and a better type of knowledge regarding it, it will continue to be a profitable happy hunting ground for the quack, wherein will flourish bizarre, ridiculous and unfortunately tragic ideas.

Barbers' Itch

To the Editor:—What is the cause of sycosis vulgaris and what is its effect on facial beauty? What are some of the most effective treatments and preparations that leading dermatologists recommend or practice for the cure of severe cases of this disease?

L. B., Florida.

Answer.—Sycosis vulgaris, also called folliculitis barbae and commonly called barbers' itch, is a chronic disorder involving the hair follicles and is characterized by papules and pustules. The condition is caused by the invasion of the sebaceous follicles by pus-producing germs. Shaving and the use in common of towels, brushes or combs may be given as the origin of the disease. The disease is not hereditary. It has been found to be associated with eczema.

The treatment of cases varies with the condition. If there is much tenderness, pain, swelling and a great amount of pus and crusting, these must be relieved by appropriate measures. Occasionally, hot dressings frequently applied during the day are of value. Soothing ointment may be applied between hot applications. It may be necessary for the patient to shave every day, even though this may be painful. The use of hot applications and antiseptic solutions must be decided for each individual. In some cases dusting powders are necessary. Vaccines have been tried and found successful in a small percentage of cases. X-ray therapy in the hands of a well qualified operator has also been employed with success. Internal treatment may be necessary and should be employed according to the needs of the individual patient.

The disease is entirely curable and in a large majority of cases disappears entirely or is greatly improved by the proper treatment.

Lead Poisoning

To the Editor:—In negotiating with the employees of our company, a smelting and refining organization, the question has arisen as to whether we would furnish them with a quart of milk daily as a preventive of lead poisoning. Our plant physician and other medical authorities with whom we have consulted express the opinion that, though immediate benefits may accrue to one exposed to lead poisoning, if he drinks a quart of milk daily, nevertheless the calcium in the milk has a tendency to fix the lead in the bones of the person exposed to lead poisoning; and later, influenza, heavy colds or other illness tend to force the lead from the bones into the blood stream, thus causing severe cases of lead poisoning. The company is desirous of maintaining the health of its employees, and we would therefore appreciate your opinion as to the effect of milk as a safe preventive of lead poisoning, with particular reference to its aid and effect over a long period of time.

A. H. R., California.

Answer.—It is not likely that the amount of calcium in milk, balanced as it is with phosphorus, would materially increase the storage of lead in the bones. Whether milk has any specific value in preventing lead poisoning also seems questionable. In an article on lead poisoning (Occupation and Health, International Labour Office, 1934), Prof. C. Biondi of Sienna expresses the best view: "The widespread belief that the regular use of certain remedies . . . or milk-drinking is sufficient to prevent lead poisoning, is incorrect. On the other hand, a certain value must be attached to nourishing and fat-forming diet, and to that extent to milk-drinking also."

Reaction of Body to Salt

To the Editor:—Does salt speed the heart action? Does it strengthen the heart? Is it essential to diet? Does it aid digestion? Can a human being survive without it?

A. O. S., Ohio.

Answer.—Salt, or sodium chloride, constitutes the greater part of the electrolytes of the fluids of the body. The salt ions are necessary for the proper functioning of body cells. These salt ions are constantly excreted and therefore must be constantly replenished; this explains the instinctive use of salt in foods.

Salt plays another part in the body: that of osmosis, which means the exchange of fluid from one part to another. Salt also stimulates the lining of the stomach to increase secretion. It has a laxative action in certain individuals and also serves as an irritant to the skin, with resulting reflex stimulation. This action is utilized when salt water baths are recommended.

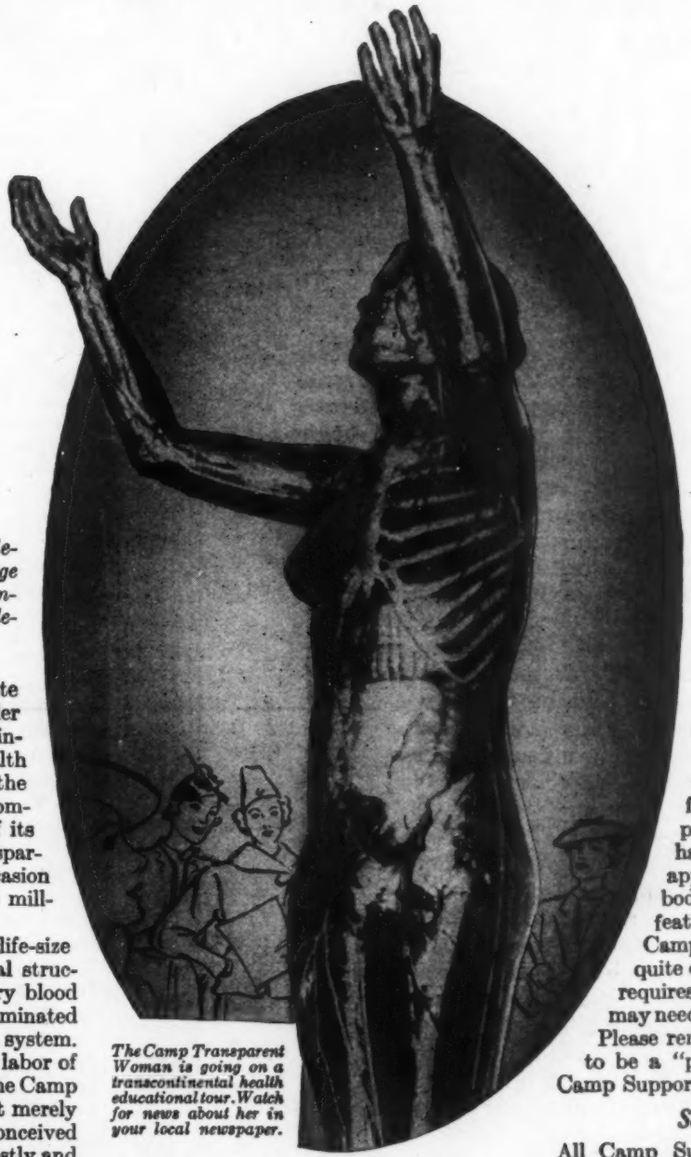
Certain solutions of salt are useful for cleansing sensitive mucous membranes and for injection with a hypodermic needle under the skin and into the vein. In this way, salt is employed in hemorrhage and collapse and for dilution or removal of poisons from the system.

One cannot say that salt speeds the heart action, but salt solution of a definite strength serves to help the circulation under certain conditions. By this is meant the giving of salt solution after a hemorrhage. The body then receives this solution, and the heart is able to pump the blood through the body with greater efficiency, since the lost blood has been replaced in volume by the salt solution.

Salt is necessary to diet. The human animal needs salt. There are certain disease conditions in which salt must be withheld for a prescribed length of time. Among these conditions are some of the fevers, some types of kidney diseases and some forms of cancer.

THE CAMP TRANSPARENT WOMAN

and what she means to you



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Physicians warn against neglected conditions which are known to precede the onset of cancer—lumps, unusual discharges, wounds that will not heal, moles and warts that change in size and color, or other abnormal conditions. Continued irritation of any part of the body is often the beginning of trouble.

If your family doctor finds a suspicious condition he presumably will not pass judgment as to whether or not it is cancer until he can get complete scientific confirmation.

Many people who fear they have cancer are worrying without cause. A complete physical check up which shows there is nothing wrong is a very comforting assurance. Thorough and competent periodic physical examinations may help doctors to discover cases of cancer while there is still time for successful treatment. Should suspicious symptoms appear at any time, see your doctor at once.

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SKIING FOR HEALTH

(Continued from page 80)

appropriate equipment it is possible to weather even severe blizzards and icy gales in relative comfort. The peripheral parts of the body, such as hands, feet and ears, are in greatest danger from freezing; therefore they must be protected with special care. A pair of woolen mittens with windproof mitten covers over them will keep the hands snug and warm because of the common air space around the fingers. Thus mittens are definitely preferable to gloves. Sturdy, roomy ski boots and heavy goat hair socks are important, and the hood of a parka, a Swiss style ski cap or a wool cap will keep the ears in comfort. Parts of the body in which the blood cannot circulate freely freeze especially easily, and for that reason it is necessary to beware of small shoes or tight toe straps of the ski binding which would hamper the circulation in the toes. When one is physically fit and the heart forcefully pumps the blood into the farthest capillaries of the body, there is not much to fear in even the coldest weather. It is only when the victim is nearing the state of exhaustion and the heart is weakened in its action that the danger of freezing becomes great. When he has struggled for hours against a raging blizzard through the deep loose snow and the strength is faltering, when he would like to sit down in the snow to rest for a while, it may become a very long while. Under those conditions hot coffee in a thermos bottle may prove a life saver. Alcohol, however, would have only the contrary effect. It would make him feel better for a few minutes, but afterward the reaction to it would be disadvantageous and sap his last strength. Hands or feet that have started to freeze should be rubbed vigorously with a rough cloth to stimulate the circulation until it returns to normal and the previously cold, livid skin regains its natural color and warmth. The old method of rubbing a frostbitten part with snow has been discarded, because this only lowers the temperature still more.

If a person is found exhausted and near death from freezing, greatest care must be taken in transporting him because his body and his extremities are stiff and brittle, so that there is great danger of fracturing his bones. If he is unconscious and artificial respiration is attempted, care must be taken not to fracture his ribs. Avoid bringing him too suddenly into a warm room, and wait with the giving of warm drinks until he has regained consciousness.

Although it seems paradoxical, severe cases of sunburn are more common in skiing than are cases of freezing. This is due to the strong action of ultraviolet rays, which were mentioned in the beginning of this article. While the sunshine of a winter day will produce only a pleasant tan, the burning sun of a day of spring skiing on open slopes at a high altitude may bring about bad cases of sunburn, especially in persons of light complexion or persons who have not previously acquired a coat of tan. The lips are in special danger and should always be protected by some kind of sunburn cream if more than a few hours are spent out on an open sunny slope. It is the advice of many authorities not to wash one's face with soap before and during a prolonged trip to the high snow-covered mountains because the soap removes the natural fatty layer protecting the skin. Persons who do not think this method compatible with their ideas of cleanliness will have to use sunburn cream in rather liberal amounts.

Another dangerous aspect of the glaring light is its effect on the eyes. A day of skiing on the sunny expanses of unbroken white above timber line is most likely to lead to snow blindness unless colored glasses are worn. We must not let the cold deceive us about the presence of this danger. Snow blindness is characterized by a violent hyperemia, swelling of the conjunctiva and extreme sensitivity to light. In exceptionally bad cases the cornea may be affected also. The patient cannot open his eyes in daylight, and he complains about smarting pains in his eyes. His eyes should be protected by cold compresses and covered by a dark cloth until he is brought home, where he should be confined to a dark room until the symptoms have subsided. A much graver type of snow blindness, which affects the retina, the actual sensory part of the eye, may lead to permanent blindness.

Greatest caution is indicated therefore, and sun glasses ought to be worn regularly. Amber colored glasses are highly recommended; goggles with aluminum frames which protect the eye from peripheral radiation from below and from the sides and which fasten with an elastic ribbon around the head are best for skiing.

Strenuous ski mountaineering trips at high altitudes sometimes lead to a complex of symptoms known as mountain sickness. The rarefied oxygen content of the upper air strata is not sufficient for great demands of heavy muscular exercise, especially in people not yet acclimated. Headaches, dizziness,

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shortness of breath, palpitations and tachycardia with as many as 150 or more pulse beats a minute are the typical symptoms. In addition, a great indifference and unwillingness to move and go on overcome the skier; this inertia is a real menace in the face of the necessity of getting to the nearest shelter. Foods which supply quick energy, such as carbohydrates in the shape of sugar and chocolate, and stimulants such as hot coffee will renew his strength and determination; in the case of serious danger the companions of the exhausted person must urge and drive him on but never leave him behind alone, for that would mean certain death.

In general, overstrenuous climbs should be avoided by the untrained skier because the heart muscle is only too easily affected.

It is to be hoped that this recital will not deter any one from participation in such a wonderful sport as skiing. There are dangers in every form of physical exercise, and many American games, notably football, if played roughly are much more liable to result in serious injuries. With the exercise of good judgment and avoidance of excessive speed, one may ski every week-end of winter and early spring for many years without suffering any injuries. Health and physical vigor will benefit, and at the same time one may enjoy the beauty of snow-clad mountains and the thrills of the "king of sports."

PARENTS AND TEACHERS WILL THINK ALIKE IN A UNIFIED CULTURE

As our culture becomes more unified we may expect parents and teachers to have increasingly similar backgrounds of education and values—they will presumably come to speak the same language. Parents will share in the consideration of changes in the outlooks and methods of the schools. Adult education too will include increasingly an explicit acquaintance of parents with the problems of education as these arise out of the changing life of the community, and with the methods of education as these emerge from better insight into the nature and development of children. Parents and teachers will thus truly meet on common ground for a common purpose: the best education of the child.—*Child Study.*

CORRECTION

In "Winter Insects," an article appearing in the November 1936 issue, sodium fluoride was erroneously described as harmless to man and animals.

LAND OF THE COD

(Continued from page 45)

These great fish have been found at all times in the water of the St. Lawrence River, but it is only within the last few years that they have been a menace. Before that they served rather as an attraction and a diversion to those who watched their antics from the decks of steamers. Recently the porpoise has become so serious a menace to the cod fishermen that the government has taken a hand. Boats equipped with small guns and manned with expert fishermen who are armed with high powered rifles have been sent out to attack the porpoise. Planes have also been chartered by the government to enter into the fight and assist the fishermen by means of bombs and depth charges either to destroy the fish or drive them away from the cod banks. It is said that the part played by the government has already shown results, and it is hoped that the cooperative efforts of the government officials and the fishermen will succeed in doing away with the porpoise threat against the security of Gaspé cod fishing.

The government has also interested itself in other ways in bettering the welfare of the fishermen and the development of Gaspé fisheries. About ten years ago a law was enacted by the province of Quebec which provided for the formation of associations to improve and develop fisheries as well as to purchase rigging boats and other articles used by the fishermen. These associations aid in the cooperative buying and in the selling, catching, inspecting, preparing, transforming and transporting of the fish to the markets. Other provisions concerned with the codfish industry, such as the building of cod storage plants, were included in this legislation. Enactments also provided for prizes varying between $5 and $15 apiece for the fishermen who should take the greatest care in the cleaning and washing of their cod. It is believed that, as a result of these premiums, a marked improvement has already taken place in the methods employed by the fishermen.

The life of the fisherman is not at all an easy one. Long before dawn he is out in his boat and off for a catch. He returns at about 10 o'clock to go out again about 3. Then, from shortly after the time of his return at sunset and midnight, he is out for bait for the next day's catch. If it is a bad season and he has not earned enough to supply the needs of his family, then he must leave home and go into a

lumber camp during the winter months. If the catch has been good he may remain home and work indoors preparing lines or doing such odd jobs as have accumulated during the year. I am told that a Gaspé fisherman considers it a good year if his catch runs around 7,500 pounds. During this summer of 1936 he was being paid at a rate of $2.50 for each 100 pounds of cod when dried, and it takes many more than 100 pounds of fresh fish to weigh 100 pounds when dried. The average fisherman's family has an income of around $200 a year if everything is going well. This means that his requirements and mode of living must be extremely simple. The principal items of food are codfish, potatoes and a coarse bread made in the great clay ovens which one sees outside the homes along the roadside.

The vicissitudes of life among the Gaspé fishermen of an earlier day were painted in an unforgetable word picture by C. M. Barbeau, of the National Museum, Ottawa, in the 1923 Christmas issue of the Quebec Daily Telegraph: "In the winter, fierce winds from the ice bound sea crept viciously through the cracks into their shelter to freeze the water in the bucket or the venison or dried fish that was their only diet. Their paths were buried under a thick bed of snow. No where to go, no one to call! The cry for help could not be heeded. If disease happened to steal in, a cure was sought in potions from herbs or barks, superstitious recipes, a prayer to God or the saints, or hope everlasting. A child born in the autumn, we are told, could not survive the winter. 'We set down and cried!' said an old timer. 'We were sorry he had come; it was all a mistake. But later we got used to it. It was no longer so bad!' "

The Gaspé now boasts a few modern hospitals, and much credit is due to the Canadian government for the marked improvement which has taken place in their roads during the last year. But physicians of the Gaspé must and do exemplify the word "service" in its highest sense.

"It's all feast or famine," said Dr. A. C. McLean of New Richmond, with whom I talked. He was not discussing financial returns but sleep. Doctors of Gaspesia have far too little in the form of financial returns to make them even a talking point. Often they must take their pay in fish or hay or, more frequently still, in gratitude.

Dr. McLean told of going from one delivery to another with scant snatches of sleep for periods of ten days or more. In the fourteen years during which he has served a community comprising some 700 square miles, in addition to performing emergency operations and taking care of the various ills that come to mankind he has brought into the world an average of more than twenty babies a month.

No quintuplets have arrived, but I did see triplets, 5 years old, at New Richmond who had been prematurely born and had been brought through a precarious start without benefit of hospital aid or nurses and under circumstances which would have been front page news had it occurred in this country.

The future of this Land of the Cod is interesting. Will it become a tourist's haven in which the Gaspé fishermen will be "ruined," as some oldtimers fear, for the mode of living bequeathed them by sturdy forebears? Or will modern methods of cod liver oil production take a hand as they have in other parts of the world and make the Gaspé catch of cod an even greater asset? It will be interesting to see what happens.

[NOTE.—The author is indebted to the Quebec Provincial Tourist Bureau for some of the facts presented in this article.]

TRAILERS AND SANITATION

With the steady increase of the number of automobile trailer homes that are seen on the highways the problem of sanitary camps for them arises. They must be accommodated in such a manner that the health of the occupants as well as that of the residents of the state will not be impaired. In all fairness to the users of trailers and to the resident population of the state, trailers cannot be permitted to camp indiscriminately on vacant lots, beaches or highways without sanitary facilities. According to *Health Notes,* a monthly bulletin issued by the Florida state board of health, these itinerants are required to camp only in certified tourists camps provided there for this purpose. This state has a statute which defines tourist camps and makes it necessary for all such establishments to comply with fundamental sanitary regulations as determined by the state board of health before being permitted to operate.

The winter season of 1937 is expected to exceed any other in point of trailer travel. The increasing popularity of the trailer has caused several large automobile manufacturers to announce plans for the production of trailers on a large scale basis, which should so materially affect their prices that modern trailers will soon become available at much lower costs than even present manufacturing methods permit.

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YOU CALL THEM DEAF—

(Continued from page 11)

Frogs, it is known, can communicate with each other by sound for a considerable distance under water. If you hold your fingers close to a croaking frog under water, you will experience a stinging sensation on the tips not unlike an electric shock. Sound vibration can be conducted through the cranial bones directly to the auditory nerve endings within the cochlea.

Accordingly there are two kinds of electrical hearing aids, which may be employed to advantage by those whose hearing has fallen below par: those which merely amplify the sound and those which are designed for bone conduction.

On the basis already stated there are in the United States approximately 15 million persons who are deaf or have defective hearing. A relatively small number of these are deaf in the true sense of the word; that is, altogether and completely deprived of the sense of hearing.

Such cases are due either to an inherited lack or to an acquired loss of some part of the nerve elements essential to the auditory function. They are therefore beyond the help of any mechanical hearing device. They are not, however, beyond help of another kind. No matter how deaf one may be, apprehension of the spoken word can be learned. Of course the earlier this is taken up, the more proficient will the pupil become in the art of lip reading; but at any age, with a little perseverance, enough can be learned to be of the utmost help in the daily transaction of life.

There are now in every community of any size trained teachers in the art of lip reading. Not only the deaf but the near deaf as well, should avail themselves of these services.

There are in the world a great many who may seem deaf, but in reality are not. They hear the sounds about them poorly, and yet they are possessed of a perfectly normal sense organ of hearing, one capable of appreciating any tone or shades and combinations of tones within the normal human range of from 20 to 20,000 vibrations a second. They will not hear clearly a conversation spoken in front of the ear; and yet if the stem of a vibrating fork is held against the mastoid bone, it will be heard perfectly, in fact apparently even better than by a person with normal hearing.

What does this mean? It means in the first place that the trouble is located in the conductive mechanism of the ear, which consists of the canal, drum membrane and ossicles; and in the second place it means that, strange as it seems, the natural pathway for the conduction of vibration is not absolutely indispensable. It is quite possible for sounds to be transmitted to the special sensory nerve-ending in the organ of Corti directly through bone. If these nerve elements are normal there will be normal hearing. It is one of the triumphs of modern acoustics that an efficient means, in the form of an electric oscillator, has been devised for facilitating hearing by bone conduction.

Let any one place this little instrument firmly against some part of the skull, preferably over the mastoid, and though the ear canals be closed as tightly as possible, he will have no difficulty in hearing ordinary conversation from any part of the room. No matter how deaf one may be, if only the nerve elements concerned with auditory perception are still intact, satisfactory hearing may be definitely promised. However, a little experience may be required in some cases to become adjusted to the unaccustomed sensation.

Why are these instruments not more generally used? In the first place because they are not selected with discrimination. Patients who are not suitable subjects are induced to use them by selling agents, and so hearing aids in general become discredited. In the second place there is on the part of the hard of hearing an unreasonable prejudice against their use, because they may reveal a defect which the users try hard to conceal.

Deafness, they should realize, is not a stigma and is nothing to be ashamed of. The old idea that associated it with intellectual inferiority was itself an ignorant assumption, and it has long since passed away. As a malady, deafness is hallowed by such names as Goldsmith, Reynolds, Chesterfield, Swinburne, Le Sage, Boileau, Martin Luther and Edison.

There is no real reason for the attitude toward hearing aids so different from that toward glasses. The idea is fundamentally the same, and a full realization of the fact should gradually bring about their more general use.

The manufacturers are contributing to the end by making all the devices inconspicuous. The ear pieces are quite small, and the batteries and receivers can, if desired, be well concealed.

Now and then I have encountered objection to use of hearing aids on the ground that they are like crutches on which the user must

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Enclosed find.....dollars.....cents. Send me.....Dr. Blanchard's Vacuum Toothbrushes, post paid. If C. O. D., check here ( ).
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always depend, and continued use might injure the hearing.

The comparison is not an apt one. A crutch is something which provides a substitute for normal exercise. A hearing aid is exactly the contrary; it provides normal exercise where it otherwise does not exist. A function that is not exercised deteriorates, and that is just as true of the hearing as of any other function of the body. There will be no injury to the hearing if only suitable aids are used. They ought always to be prescribed as eyeglasses generally are, after an intelligent examination and diagnosis of the individual case.

We began this little story by recalling a scene laid 120 years ago in Vienna. Let us close by a scene which occurred not long ago in an American city.

Time: May 27, 1936.

Place: Ballroom, Hotel Statler, Boston.

Occasion: Sixteenth annual conference of the American Association of the Hard of Hearing.

Preparation for the convention had been under way for some weeks at headquarters in Washington. Key members of the staff, Miss Betty Wright, executive director, Mrs. Laura Stovel, editor of *Hearing News*, and Miss Ada Hill, director of exhibits, had been busy day and night keeping in touch with officers of the local leagues scattered throughout the country, and especially with Mrs. James F. Norris, president of the league, in Boston. All were buoyed up to a high degree of enthusiasm in the anticipation of the greatest meeting ever held by the association. Registration in fact exceeded all expectations.

The evening of May 27 finds the great ballroom of the Hotel Statler filled with an enthusiastic audience from all parts of the country, brought together by strong ties of mutual interest that made them all friends. On the stage the president, Dr. Frederick Sperry, presides. The speaker is Dr. Harvey Fletcher, that wizard in the domain of the physics of sound and speech. He is reciting the fascinating story of Dr. Alexander Graham Bell, inventor of the telephone, and is followed with rapt attention.

A few who have no hearing that may be used sit near the front that they may watch closely the lips of the speaker; the rest, provided with disks which fit over their ears or behind them, most of them so small that they are scarcely noticeable even on close scrutiny, are seated throughout the hall. Many of these too have learned to assist their hearing by skilful reading of the speak-

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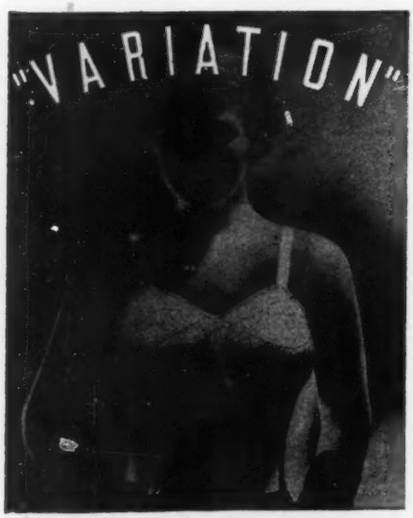

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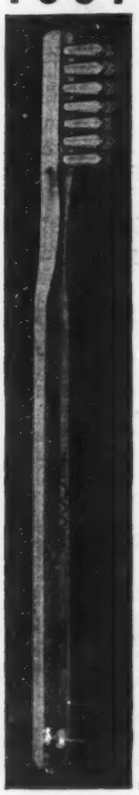

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If your druggist or department store cannot supply you, send 60c to us for INTRODUCTORY PACKAGE of 6 Standard Takamine Toothbrushes.

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er's lips. Not a word escapes this eager and attentive audience; though you call them deaf, they hear everything. Happiness, interest in life and a robust enthusiasm are evident in their faces.

What a contrast with the lot of the deaf and deafened of more than a hundred years ago, or even of those of our own day, who have not availed themselves of all that science offers for their good.

REMOVING ADHESIVE TAPE

From time to time various recommendations have been made as to the easiest way of removing adhesive tape. Every one knows that it is painful to turn up one edge of the adhesive and to jerk it suddenly away from the skin. Furthermore, this will pull out the hair and may even remove the skin and thus give opportunity for secondary infection, according to a recent comment in *The Journal of the American Medical Association.*

Gasoline, kerosene, ether and various volatile oils have been recommended in the past, but none of these substances meets the optimal indications. Others that have been advocated are known to possess a definite fire hazard as well as being irritating to the eyes, nose and throat.

Recently the Council on Pharmacy and Chemistry of the American Medical Association has voted to accept two solvent preparations proposed primarily for the removal of adhesive tape from the skin. One of these, though not inflammable, must be used with caution because it contains ingredients whose action is similar to that of chloroform, and the same precautions are necessary as to its inhalation. The other product is a mixture of approximately 60 per cent carbon tetrachloride and 40 per cent naphtha with a small amount of oil of sassafras. Such a mixture may burn but will not explode under average circumstances, and in the ordinary sense it is considered to be noninflammable.

With any of these preparations there may be some danger associated with the removing of large quantities of tape in small rooms without proper ventilation. This is, however, a minor danger and should not be seriously disturbing. Certainly it is far less hazardous than the use of gasoline anywhere near a source of flame or heat. Coaches and trainers of athletic teams will do well to equip training quarters with plenty of modern improved solvents so as to eliminate any danger of catastrophe from inflammable liquids.

Schools and Camps

Has your child heart trouble, asthma, diabetes, nephritis?

He may lead a normal life, grow strong and learn in the sunshine at

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Radford School For girls. Accredited college preparation in ideal year-'round climate. Open air classes in patio. Special work in music, art, dramatics, secretaryship. Character and personality developed. Sports, riding. Limited enrolment. Not for profit. Catalog. Lucinda de L. Templin, Ph.D., Principal, 4700 Austin Terrace, El Paso, Texas.

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Beverly Farm, Inc. Home and school for nervous and backward children and adults. Successful social and educational adjustments. Occupational therapy. Dept. for birth injury cases. Healthfully situated on 220-acre tract, 1 hr. from St. Louis. 7 well-equipped buildings, gymnasium. 39th year. Catalog. Groves Blake Smith, M.D., Supt., Box H, Godfrey, Ill.

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The Joint Committee of the N. E. A. and the A. M. A. has compiled this program for the use of teachers in primary grades through high school and normal college. It lends itself well to the needs of teacher-training institutions. It is a source of constantly new ideas for health activity to the teacher of health. 1930 paper cover edition, $1.25; 1930 cloth cover edition, $1.75.

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Send to the American Medical Association for pamphlets and charts on all important phases of health activity—disease prevention (typhoid, scarlet fever, smallpox, diphtheria, etc.), infant welfare, diet, exercise, patent medicines. A catalog of published pamphlets will be sent free upon request.

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For health activity aids easily adapted to your own classes use HYGEIA, THE HEALTH MAGAZINE every month. Its material is timely, authentic and interesting. Especially for teachers, Dr. J. Mace Andress, well known educator, conducts in Hygeia the "School and Health" department, presenting actual experiences of teachers in vitalizing the subject of health. A year's subscription—$2.50. 25 cents a copy.

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Remember that either Arm & Hammer or Cow Brand Baking Soda are Sodium Bicarbonate, U. S. P. See page 95 for details.
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SCHOOL AND HEALTH

(Continued from page 77)

in an already overcrowded curriculum a health program that would be productive of desirable health conduct on the part of the students, began a thorough and exhaustive study on correlation. This study, which was carried on for a period of two years, revealed the following facts about correlation:

1. Not more than one third of the health material that should be taught in the junior and senior high school can be taught by correlation. (Volume III of the Ohio Health and Physical Education Series was used as a criterion for judging what health material should be taught in the high school.)
2. In many textbooks there is no tendency to organize the subject matter around health topics or to make the material applicable to the health needs and curiosities of the students.
3. The material in many textbooks is often poorly arranged, usually in a logical rather than a psychologic order.
4. In many instances the method of dealing with health topics is antiquated. For example, in many high school textbooks it was found that considerable emphasis is placed on the value of breathing exercises.
5. Many classes at the present time are not utilizing more than 50 per cent of their possibilities for health instruction.
6. There is considerable repetition of health material in the various subjects taught in the curriculum without any change in the approach and setting.

These facts clearly show that until teachers become trained in health education and until better textbooks are written it will be necessary, in order to secure satisfactory results by correlation, for every school to have a health coordinator who can point out to the classroom teacher the health interests and needs of the students and help her with her lesson outlines.

The following unit is typical of the several lessons that we have prepared:

A LESSON IN CORRELATION OF THE TEACHING OF BIOLOGY WITH THE TEACHING OF HEALTH

BIOLOGY UNIT: THE NERVOUS SYSTEM OF MAN, CHAPTER 23 IN SMALLWOOD-REVELEY-BAILEY'S "NEW BIOLOGY."

HEALTH UNIT: FATIGUE AND TIREDNESS, "THE OHIO HEALTH AND PHYSICAL EDUCATION SERIES," VOLUME III, PAGE 309.

LESSON PLAN

I. Approach—Five or ten minutes on preceding day
   1. Raise questions about the cause and effects of fatigue. Cite examples of overstrain and the consequences. Why is a football player often taken out of a game even though he is able to continue playing? Why can't a major league baseball pitcher pitch every day? Why are employers often in favor of a short hour working day? Will worry make a person tired? See Volume III for additional questions.

II. Assignment on preceding day
   1. For all students
      1. Read biology text, pages 396-397.
      2. Make a list of the causes of fatigue.
      3. Make a list of ailments brought about by fatigue.
      4. The symptoms of fatigue.
   2. For individual or committee assignment
      1. Investigate the effect fatigue has on a living cell.
      2. Explain the effect fatigue has on circulation, metabolism, elimination, emotions, respiration, etc.
      3. Study fatigue experiments that have been made on animals.
      4. Explain why muscles become sore and stiff.
      5. Explain how one recovers from fatigue.
      6. Study sleeping habits of animals: length of time, sleeping position, etc.
      7. Demonstrate ways to relax and positions most restful.

III. Conduct of Class
   1. Conduct experiment with fatigue machine, Gregg-Rowell's "Personal Health," page 30.
   2. Have assigned reports.
   3. Discuss in conclusion:
      1. The answers to any question.
      2. The importance of conserving energy during adolescence.
      3. A program of relaxation.

REFERENCES

1. Andress-Aldinger-Goldberger: Health Essentials, chapters 1, 5, 6.
2. Brock: Teaching Health Through Projects, pages 166-172.
3. Gregg-Rowell: Personal Health, pages 29-36.
4. Meredith: The Health of Youth, chapter 22.
5. Smallwood-Reveley-Bailey: New Biology, pages 396-397.
6. Thackston-Thackston: Human Health, chapter 10.
7. Williams: Healthful Living, chapters 16 and 17.

ACCEPTED FOODS

This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Council on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Council. If you desire information regarding any other food product, you are invited to write to HYGEIA.

Church's Pure Natural Grape Juice

made from properly ripened grapes. Contains no added sugar, water or other substance whatsoever.

Free from the excess acid of unripened fruit.

Church Grape Juice Company, Kennewick, Wash.

WHOLESOME! DELICIOUS! Durkee's

Purely American Vegetable Margarine, an "All-American" product, is nutritious, satisfying, an ideal food for cooking, baking, frying and general table use.

Ask Your Grocer for Durkee's Margarine.

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An interesting set of questions and answers in booklet form. A copy may be obtained free by request to the

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Do You Know—

1. What early invention of the Arabians created the science of arithmetic? *See page 46*
2. That by brushing the teeth one can cut the bacterial content in the mouth by from 25 to 50 per cent? *See page 20*
3. Into what two classes all cases of impaired hearing fall? *See page 8*
4. How many lines fishing trawls carry? *See page 42*
5. The three causes of appendicitis? *See page 12*
6. In what manner the name of Marcello Malpighi has been commemorated and preserved? *See page 62*
7. What is the present life expectancy of a 10 year old child who has diabetes? *See page 37*
8. What germ causes gonorrhea? *See page 59*
9. What effect irradiation of ergosterol has on the vitamin content of a food? *See page 64*
10. What twelve men contributed the most to the control of syphilis? *See page 50*
11. That "mass drill" in gym classes is no longer practiced? *See page 29*
12. What influence heredity has on clubfoot? *See page 81*
13. How many varieties of sting rays there are? *See page 26*
14. What dangers may be encountered when a person skis without mittens or gloves on? *See page 16*

Dr. Phillips

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Recommended for Children

as a Source of Vitamins A, B and C

Dr. Phillips Orange and Grapefruit Juices and Grapefruit Hearts are uniformly rich in vitamin C and always full of flavor. Tree-ripened, they are canned fresh from the grove under the most modern scientific and sanitary conditions. Easy to serve at any time, anywhere. Get several cans today.

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is made from sound sweet Vanilla Beans. You will find it imparts a delightful flavor. We will be glad to send you a sample.

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YOU KNOW HIM . .

but do you know the reasons why Cream of Wheat is the preferred cereal in millions of American homes? Some of the important facts are given on page 96. But why not make an actual trial?—50 generous servings at less than half a penny each!

The Cream of Wheat Corp. Minneapolis, Minn.

What's in a Can of Canned Food?

Modern knowledge is shattering many false ideas about canned foods. Be sure to read the highly informative series of ads in HYGEIA on values of canned foods. See page four.

AMERICAN CAN COMPANY, New York City

PLEASE SEE PAGE 1

By appointment to his Majesty!

Make no mistake, he's every cuddly inch a monarch. And at feeding time, when he calls lustily for cup and bowl, his royal preference is definitely for strained foods made by Heinz.

We believe *babies are people.* Their strained foods should have both taste appeal and nutritive value. Heat a serving of Heinz Strained Foods. Taste. You'll agree it's a dainty dish for Prince Charming. And remember, all 11 kinds bear the coveted Seal of Acceptance of the American Medical Association's Council on Foods.

Child problems, homemaking on *Heinz Magazine of the Air,* half-hour radio program—Mon., Wed. and Fri., 11 a.m. E.S.T., Columbia Network.

57

HEINZ STRAINED FOODS

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CLOVERDALE MINERAL WATER

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FROM THE LOFTY BLUE RIDGE MOUNTAINS

RECIPES FOR YOU in every sack . . .

"15 Prize Recipes" and a folder of Betty Crocker's recipes in every sack of Gold Medal Flour!—See advertisement inside back cover for details.

GOLD MEDAL FLOUR

THE TALENTED CHILD

(Continued from page 70)

them. Don't try to live his life for him. If he is a genius he'll resent it; if he isn't you may make him an unhappy neurotic creature unfit for the simple pleasures and pains of everyday life.

No longer need a mother take her child to Europe for study and a debut, as my mother so valiantly did, for the best teachers are here in the United States now, and money and opportunity lurk at every crossroad. There are teachers trained by masters of their art and craft in every city and town. Los Angeles, Chicago, New York, your guess is as good as mine; but success, astonishingly enough, often comes to him who waits in the small town and does the thing he does exceedingly well.

Fame, big-time contracts and world acclaim, all come exactly the way a little success, a small contract and being star of the Sunday School play come. There is a glimmer of talent, a few lessons, an appearance, and success or failure. From there a career builds up or fades away. Strange coincidences occur. A moving picture scout signs up a child in Texarkana for five years; and the hundreds clamoring at the studio gates in Los Angeles get only a day or two a month as extras. The radio scout signs Johnnie Jones, who spoke out of turn when the colonel was broadcasting, for a ten week broadcast; while New York professional children beg in vain for a hearing.

If you are in doubt about your child's talent play a waiting game. It does not matter so much what art form he follows, whether he does it with the proper technic or in some outlandish new fashion all his own. In fact it hardly matters what his method of approach is, as long as it is his own. Your opinion that his efforts are futile, wasteful and uninspired may be quite correct from an adult point of view. His teachers and the masters of his craft may be bitter and full of opposition; but wait, he may have a new idea, perhaps not a better one but one which lives, is full of force and vigor and is withal new and modern. He may be creating an art form of his own. Success, artistic and financial, may be within his grasp if you leave him alone. Avoid open argument with the child who loves modernism; he may be right! If you cannot praise, at least do not damn his work with raised eyebrows and humorous outcry. Silence at least gives consent for creative effort, whereby he may work out his own salvation. Lessons are difficult to procure for the child who espouses modernism in the various arts, but try to give him a few. You will be surprised how the child with a flair for something different can use a dozen lessons as a jumping-off point for a year's work.

There are dozens of entering wedges for professional recognition, from personal letters to stars who are visiting or lecturing or appearing in your town, and whom you ask for an interview or an audition, to an actual storming of the citadel itself. I dare not presume to tell you what is the best way, for opportunity will surely knock at your child's door offering fame and fortune in just a little different guise than it has ever done before. Usually one or two good teachers in every town are in touch with the scouts of various motion picture organizations, radio chains and concert tour bureaus. Their recitals then are really hotbeds for forcing talent. Therefore the first and foremost rule is not to flout small town amateur theatricals but rather to do good work in them. If no way opens up and you believe your child is ready for a paying job, a letter from the child's teacher to her friends or acquaintances in a big city is a help. Your banker, the president of your chamber of commerce or the bus driver who passes your corner may all have close kin in some professional career. If you need help, canvass your town carefully. The more letters of introduction you have the better off you will be when you reach the big city. Do not "high-hat" any one, for often the greatest artists, pianists and actors come from the wrong side of the tracks, socially.

Beauty contests, school plays, even a small radio station amateur hour may be the making of the child in search of a professional career. Remember too that in the beginning no engagement is too trivial, no sum too small for him to work for. Strangely enough the mother of the talented child is seldom concerned for long with ways and means. Usually she who wondered, when her child was 6, how to provide him with an expensive musical education, is surprised at the uncanny way her little genius has of annexing scholarship after scholarship and of making friends who long to be "angels" and pay all his bills. All too often she will find that she has to refuse instead of accept the offers of able teachers who desire to teach him for the

inspiration he will be to their mediocre pupils. Actually the mother of a genius must needs be clever and farsighted to keep her child from trying to do too much and from allowing himself to be exploited.

In Paris one day I watched an audition where a board of twelve men passed on the abilities of some 300 children who had been trained as dancers and actors. I was amazed at the speed of their decisions and at the apparent unanimity of the judges. During a brief luncheon intermission I interviewed M. Paul Franck, theatrical manager, and asked him how they ever agreed so easily and how best a mother could help her child succeed. He smiled as he replied, "We see always much evidence of hard work at these auditions, but usually there is a devastating lack of original talent. It is the divine spark that we seek for the Opera and the Comédie Française. Merely because we see a child who is clever in some art form we do not decide he is a genius. We know that because a child has talent that it does not necessarily follow that he has any urge for accomplishment in that line. Often we say frankly to the parents, 'We see talent but no genius.' Then we sit back and wait a year or two. The child who was merely clever we never see again. But the child who had the spark of genius comes back and blazing with righteous indignation crashes through another audition to almost certain success. Mothers can do much for their children, but I would recommend that the mother of the talented child help him study and plan with great care. Above all she should let him plan for himself, for we find that unless success is built on a firm foundation of personal desire it is only a pitfall for the unwary."

CORRECTION

In "Kidney Disease," an article appearing in the December 1936 issue, the word "grains" should be substituted for "grams" in the following statement: "The individual who would guard against kidney disease should limit himself to the use of not more than 25 grams of table salt a day, about as much as could be placed on the end of a knife."

More injuries in athletic sports occur to the knee than to any other place in the body, according to Dr. Marcus H. Hobart of Northwestern University.

THE COMMON COLD IS A FREQUENT MENACE

The season is at hand when "colds" are most prevalent. Studies made by the U. S. Public Health Service show that this disease occurs most frequently from September to March with a preponderance of cases during the early autumn months.

The common cold is a communicable disease. It is possible that it may be caused by one of several different germs which enter the body by way of the nose or mouth. The incubation period is short, and one may have the onset a few hours after exposure. The germs are present in the secretions from the nose and throat and are transferred to other persons by such acts as coughing, sneezing, kissing, shaking hands or handling objects with which they may come in contact. Persons suffering from this disease should be made to understand that they are a potential menace to all with whom they come in contact.

The common cold is a dangerous disease. It lowers the resistance of the body and leaves it more susceptible to a variety of pathogenic bacteria. Pneumonia is its most serious complication. It is estimated that three fourths of all cases of this disease follow an attack of the common cold. Among other dangerous complications are sinusitis, mastoiditis, meningitis and infections of the middle ear. The common cold is frequently followed by a flareup of an old tuberculous process.

The common cold is largely a preventable disease. The following measures will aid in its prevention:

1. Avoid crowds and persons who are ill during the "cold" season.

2. Avoid overheated rooms, too much clothing and sudden changes of temperature.

3. Form proper health habits of eating, sleeping, exercise and recreation so that the resistance of the body may be kept at its maximum.

4. When you have a cold stay at home. It lessens the chance of serious complications and protects others. Call a doctor if fever is indicated.

5. Be examined by your physician if you have frequent colds to be sure that you have no abnormalities of the nose or throat.

6. Keep your hands scrupulously clean. It is unclean to cough or sneeze in your bare hand for infected material left there may be given to others.

—*Bulletin, Connecticut State Dept. of Health.*

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Sodium Bicarbonate is probably prescribed as frequently as any other drug so that its cost is something to consider. The wide distribution of Arm & Hammer and Cow Brand Baking Soda, our long experience and our modern methods and equipment make it possible to produce these two dependable Sodium Bicarbonate brands for just a few cents a package.

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MAKE CREAM OF WHEAT

the preferred cereal each morning in millions of homes

Yes, each morning, Mother . . . for the delicious taste of Cream of Wheat never tires the appetite. Children like its tongue-teasing creaminess, its distinct granules — it is never "mushy" or pasty. And it provides them with the quick energy needed for the morning's activities.

Youngsters spend their energy lavishly; play hours and school hours — every part of their activities calls for energy in abundance. Where does it come from? Food must provide it, of course, food carefully chosen for its energy value, and for the speed with which this energy is released.

Cream of Wheat gets children off to a splendid start in the morning. It is a well-balanced food, providing protein, fat, and carbohydrate, the elements needed for growth and energy, in excellent proportion. It is easily and quickly digested, and high in nutrient value which is doubled or trebled when butter, sugar, and cream are added.

Cream of Wheat releases its energy quickly so that it becomes available for the immediate needs of the morning, and permits the growing body to develop a healthy appetite for the next meal. This is the cycle every wise mother wants — a good, substantial breakfast, and again a healthy clamoring for food at lunch time.

And every mother appreciates the economy of Cream of Wheat! The big package, triple sealed for triple protection, makes fifty generous servings, at less than half a penny each.

Get your youngsters off to a Cream of Wheat start tomorrow. They will like it, and it will aid them in the happy, healthy growth they need.

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Great care in manufacture assures uniform size in the granules of Cream of Wheat. There are no large particles which might be harder to digest, nor smaller ones which might form a paste-like mass upon cooking. The palatable taste of Cream of Wheat is always the same.

Cream of Wheat is carefully blended from the choice crops of various sections of America's grain belt. Because of climatic conditions no district produces the same quality of wheat every season. But the quality of Cream of Wheat is maintained by blending the best from all sections.

Upon being cooked, the large package of Cream of Wheat makes 6½ quarts of highly nutrient cereal food. At its reasonable price this represents a remarkable food value. Only 5 to 15 minutes are needed to cook it for children and grown-ups, only 30 to 60 minutes for baby's cereal.